# LATHES

THE SENECA FALLS MFG. CO.

SENECA FALLS N. Y., U. S. A.

# ILLUSTRATED CATALOG No. 24-B

*of*

## "Seneca Falls" Quick Change Gear Engine Lathes

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## "Star" Screw-Cutting Engine Lathes

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## "Seneca Falls" Speed and Wood Turning Lathes

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## and Attachments

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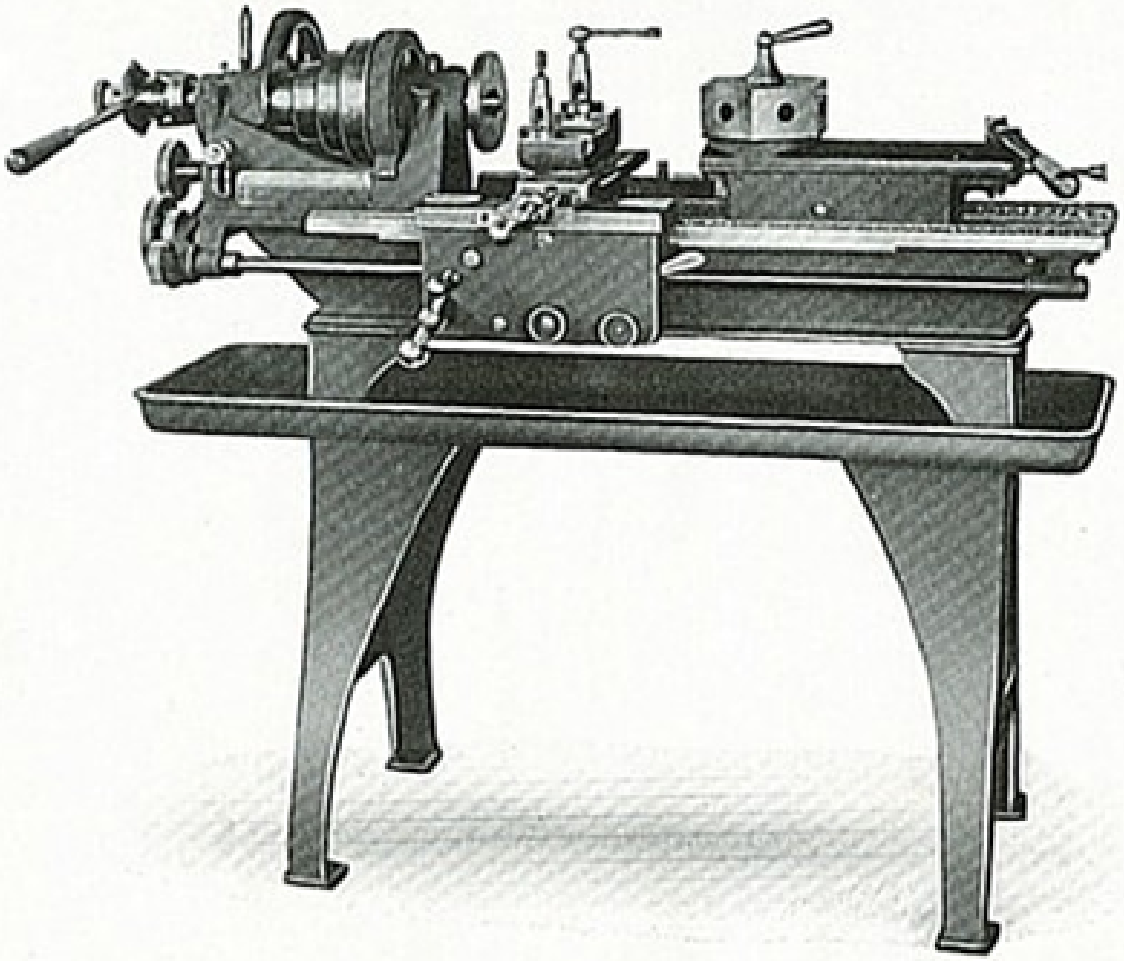
*Manufactured by*

# THE SENECA FALLS MFG. CO.

SENECA FALLS, N. Y., U. S. A.

Cable Address:—"Davis" Seneca Falls. Codes:—Lieber, Western Union & Private



This cut shows No. 25-H "Star" Lathe 11"x4 ft. mounted on Oil-pan, with Automatic Turret Attachment, Double Tool Block or Cutting-off and Forming Slide and Automatic Draw-in Chuck and Rod Feed Attachment making a very complete hand turret lathe in addition to a regular screw-cutting engine lathe.

# INTRODUCTORY

FOR many years this company has specialized the manufacture of small lathes and their attachments, building in large lots, interchangeably to a complete system of gauges, jigs and fixtures, under rigid inspection of individual parts and ensemble, with the purpose of keeping them up to the highest possible standard of excellence and efficiency.

Catalog No. 24-B accurately illustrates and describes our produce—design, style and specifications. No attempt is made at fancy finish, all endeavor being concentrated upon producing commercially perfect lathes that may be sold at prices representing unusual value.

Twelve, fourteen and sixteen-inch "Seneca Falls" Quick Change Gear Screw-Cutting Engine Lathes are convenient, rigid tools, embodying the latest and best results of experience and practical knowledge of design and lathe potency; substantial and accurate to insure satisfactory results in the most severe and exacting requirements of up-to-date toolroom, laboratory, and machine shop practice.

Nine, eleven and thirteen-inch " Star " Screw-Cutting Engine Lathes are of plainer design and construction, thoroughly practical for light manufacturing, repair, educational and experimental work. Materials are best obtainable and workmanship leaves nothing to be desired. They have no close competitors in the market for commercial and academic use.

Ten-inch " Seneca Falls " Speed Lathes and ten-inch " Seneca Falls " Wood Turning Lathes are of modern pattern, with important individual features; material and workmanship of the same excellence as that of our screw-cutting engine lathes.

A careful study of the details presented by this catalog will repay anyone interested in small lathes and their attachments. Should additional data be desired, we extend to you a cordial personal invitation to write us and to visit our works.

THE SENECA FALLS MFG. CO.,
Seneca Falls, N. Y., U. S. A.

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

"Seneca Falls" Quick Change Lathes are made in three sizes, rating 12", 14" and 16" swing. The designing and perfecting of these new lathes covers a long period of exhaustive experimental preparation, careful study and rigid test of various special and unique features.

Quick change gears have 48 combinations instantly available. Reverse device in headstock conveniently operated from apron, controls lead-screw, cross and longitudinal feeds. Automatic stop for carriage in either direction, when actuated by friction or screw feeds. Automatic safety device in apron prevents engaging opposing feeds. Longitudinal hand feed wheel is stationery under screw feed. Micrometer stop is entirely different from any other stop device upon the market and has a much wider range for profitable use.

High standard of manufacturing, combined with weight and rigid construction, produces lathes suitable for both the finest toolroom work and the heavy service of the machine shop.

**Headstock**—Web pattern, well ribbed, heavy and rigid, with long bearing on bed, hollow spindle made from 60-65 carbon crucible steel forging, revolving in large bearings, provided with oil-rings and large oil-wells, insuring constant and thorough lubrication. Cone has 4 steps, of large diameters, for wide belt; back gears and two forward speeds from countershaft give 16 spindle speeds. The cone is finished inside and outside, perfectly balanced, is locked to head-gear by push-pin and may be secured or released instantly, without using wrench.

**The Seneca Falls Mfg. Co., Seneca Falls, N.Y., U.S.A.**

Patented
Mar.-17-1903
Aug.- 2-1904
May-21-1907
Aug-13-1907
May-18-1909
Jan.-11-1910
Others Pending

| | Spindle Speeds. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ← Shifter Counter-125-R.P.M. | | | | Shifter → Counter-165-R.P.M. | | | |
| Back Gear In. | 37 | 22 | 14 | 9 | 49 | 29 | 18 | 12 |
| Back Gear Out | 357 | 212 | 134 | 85 | 470 | 280 | 177 | 112 |

Plate for 14" Lathe, showing spindle speeds, r. p. m.
A similar plate is furnished with 12" and 16" Lathes giving correct spindle speeds.

**Tailstock**—Curved, off-set pattern, massive, with long bearing on bed and base, is clamped to bed by bolts extending to the top in convenient position for wrench. Has side adjustment for turning taper. The spindle is of large diameter with long movement.

**Carriage**—Is wide and heavy, has full-length, solid bearings on V ways, is securely gibbed front and rear, a new (patented) binding device, for securing plain and compound rests to cross slide, facilitates adjustments and changing rests, and by omitting the usual slots for binder bolts, the cross slide is not weakened. The cross slide is graduated 180 degrees for adjusting compound rest. "T" slots are provided for clamping work to carriage.

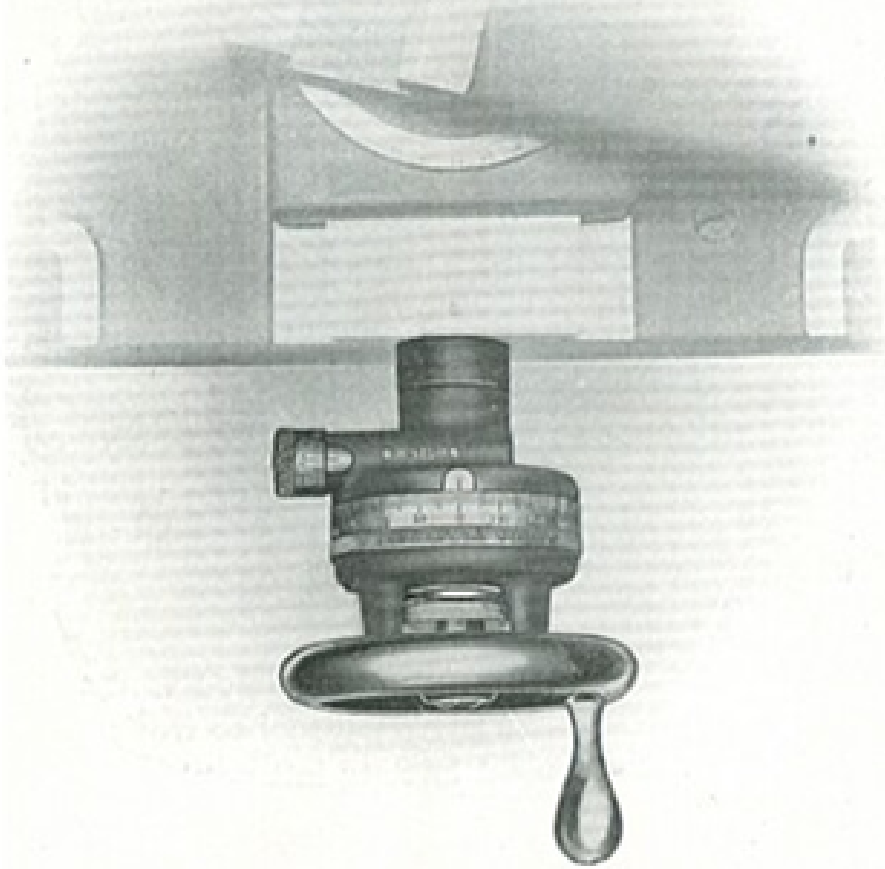
Felt wipers remove dirt and chips from the ways and spread oil as carriage moves. All Carriages are arranged for taper attachment, which can be affixed at any time. The cross-feed screw has large collar graduated to read in thousandths of an inch, the graduations are about 1-16 inch apart and are easy to read. The collar can be readily set to any position and may also be used in connection with the Micrometer Cross-Feed Stop. (See next paragraph).

**Micrometer Cross-Feed Stop**—(Patented). Is a new device, which gives a positive stop for hand feed, capable of cutting a given depth to a certainty. It has a micrometer adjustment with graduations reading .00025 inch. The graduations are about ⅛ inch apart and minute adjustments are easily made.

This stop is invaluable for all kinds of outside and inside work; it saves time because it eliminates guessing at the depth of cut; it saves making several trial cuts to obtain a desired dimension; it saves stopping lathe to caliper work; it insures uniformity in making duplicate parts. The depth of cut cannot be varied by crowding the tool. The stop is positive and may be used in connection with taper attachment.

To set stop for outside work, pull out engagement knob, (inside of hand wheel), feed tool to work or starting point, turn engagement knob to left until it comes to a stop, then push in on the knob, engaging stop mechanism with cross-feed screw.

# "Seneca Falls" Screw-Cutting Engine Lathes



Top view of Micrometer Cross-Feed Stop.

By turning the knob on micrometer barrel from you, the relative position of the stop mechanism is changed and allows the tool to advance. To set the stop for inside work, pull out the engagement knob, feed tool to the starting point, turn knob to right until it comes to a stop and push in on the knob. Turning the knob on micrometer barrel toward you allows the tool to feed outward.

The tool may be fed away from the work as far as desired and when returned will stop at position indicated by micrometer graduations. When through using, pull the engagement knob out, disconnecting the stop mechanism; while the stop is intended for use *only* with hand feed, it is not liable to break if it should carelessly be left in engagement, when using power cross-feed.

**Apron**—Is heavy and well ribbed. The gears are strong, having wide face and coarse pitch, the studs are large diameter and well supported in apron casting.

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

An automatic safety device (patented) precludes possibility of engaging opposing feeds; one feed automatically disengages when another is thrown in. When cutting screws the feed gearing is disengaged and the longitudinal hand wheel does not revolve as the carriage travels.

Powerful friction cross and longitudinal feeds are thrown in and out of contact by single hand knob on apron which operates a double friction clutch (patented) in connection with worm gear; turn knob to right for longitudinal feed and to left for cross-feed. The worm gear is actuated by phosphor bronze worm on lead-screw which is splined and simply acts as feed rod, without any wear on threads except when actually cutting screws. An oil pocket and drip pan provides constant and positive lubrication for worm and worm gear. The split nut for lead-screw is accurately fitted to guides and firmly held by gib straps.

Cross and longitudinal feeds and lead-screw are reversed by lever on side of apron; this works in connection with automatic stop for longitudinal feed and lead-screw, when feeding either to right or left. (See following paragraphs).

**Reversing Device**—For carriage is operated by lever on side of apron, which controls the travel of carriage and cross slide, when feeding in either direction, or throws the feed gearing entirely out of contact. This reversing device also controls the lead-screw. The mechanism consists of a set of spur gears and clutch in headstock operated through levers connected by reversing rod to hand lever on apron. This device is very convenient and greatly reduces the time required to turn out a piece of work in a standard engine lathe and does away with reverse belt on countershaft, thereby permitting sixteen spindle speeds.

**Automatic Carriage Stop**—Operates either right or left and may be used when cutting screws as well as for longitudinal feed, and will be found invaluable when working to a shoulder and when making duplicate parts. It prevents damage to work and machine should operator fail to release the feed.

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

**Quick Change Gear Mechanism** is simple and powerful; all gears are made from high-grade steel, the cage casting is heavy and strongly braced, all parts are made to withstand an excessive overload. 48 changes for screw-cutting and feeds may be had without removing a single gear. All standard threads from 1½ to 92, including 11½ per inch, and feeds per revolution of spindle are given on index plate, clearly showing how to instantly and conveniently obtain desired thread or feed. Extra gears may be used in the train to obtain any thread not given on index plate. Transposing gears and index plate for cutting metric threads can be furnished at an extra price.

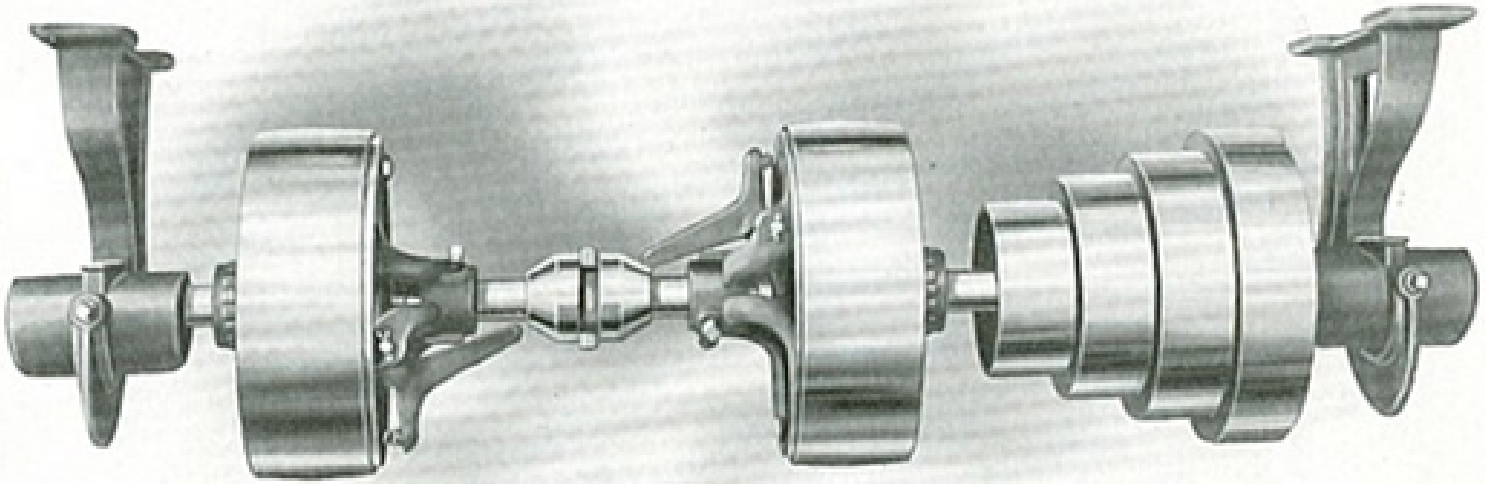
**The Seneca Falls Mfg.Co. Seneca Falls, N.Y., U.S.A.**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lever Down | Knob 1 | Thread Feed | 2 7/8 .0752 | 2 3/4 .0788 | 2½ .086 | 2 ¼ .096 | 2 .108 | 1 3/4 .122 | 1 5/8 .132 | 1½ .144 |
| | Knob 2 | Thread Feed | 5 3/4 .0376 | 5 ½ .0394 | 5 .0432 | 4½ .0482 | 4 .0542 | 3½ .0618 | 3¼ .0666 | 3 .0722 |
| | Knob 3 | Thread Feed | 11½ .0188 | 11 .0197 | 10 .0216 | 9 .0241 | 8 .0271 | 7 .0309 | 6½ .0333 | 6 .0361 |
| Lever Up | Knob 1 | Thread Feed | 23 .0094 | 22 .0098 | 20 .0108 | 18 .012 | 16 .0135 | 14 .0154 | 13 .0166 | 12 .018 |
| | Knob 2 | Thread Feed | 46 .0047 | 44 .0049 | 40 .0054 | 36 .006 | 32 .0067 | 28 .0077 | 26 .0083 | 24 .009 |
| | Knob 3 | Thread Feed | 92 .0023 | 88 .0024 | 80 .0027 | 72 .003 | 64 .0033 | 56 .0038 | 52 .0041 | 48 .0045 |

Index Plate for 14" Quick Change Lathe showing threads per inch and feeds per revolution of spindle. A similar plate is furnished with 12" and 16" lathes giving same threads and correct feeds.

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes



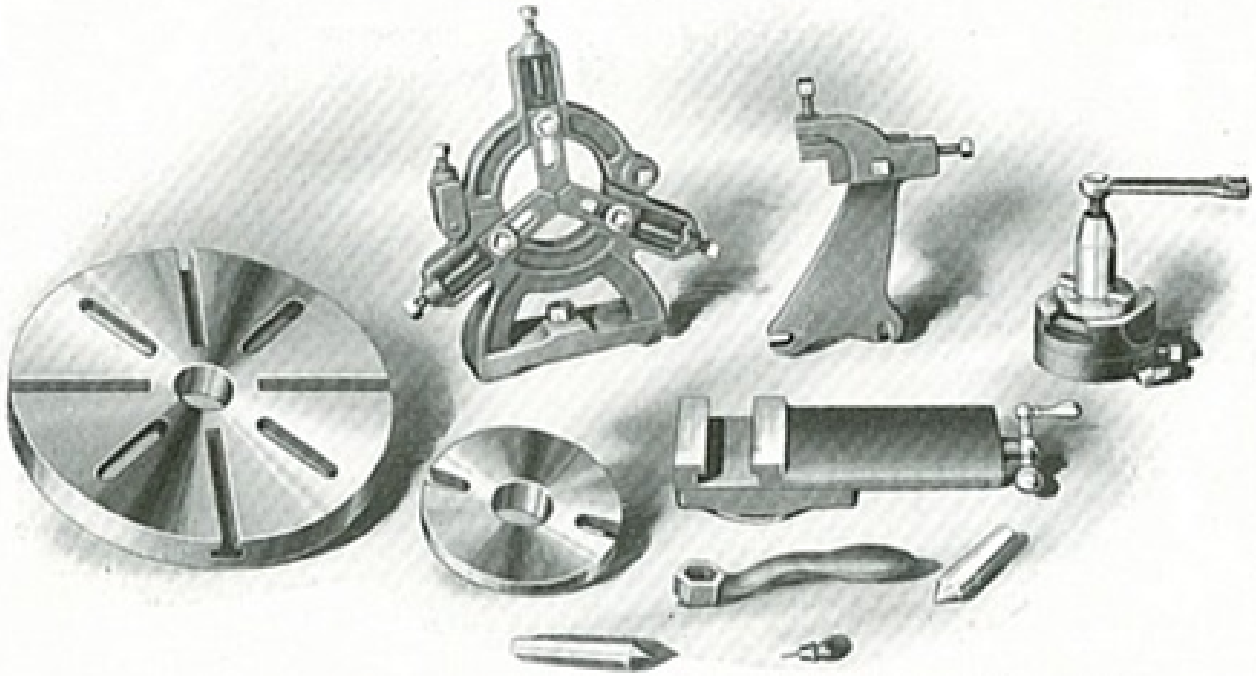
**Countershaft**—Has improved friction clutch pulleys (patented) with large friction surface on rim of pulley. Wear on friction parts, when pulley is running idle, is eliminated; pulleys have extra long hub with large wearing surface on shaft, so the usual countershaft troubles are reduced to a minimum. The pulleys may be oiled without throwing off belts. Hangers have large ring-oiling shaft bearings, adjustable for alignment.

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

**Lead-Screw**—Is made from special high carbon lead-screw steel, is cut on special lathe with master screw, which is frequently tested to insure accuracy.

**Bed**—Is extremely broad, deep and heavy, thoroughly braced by cross webs and is correctly proportioned throughout. The ends are cut-under to shorten leg base and increase stability.



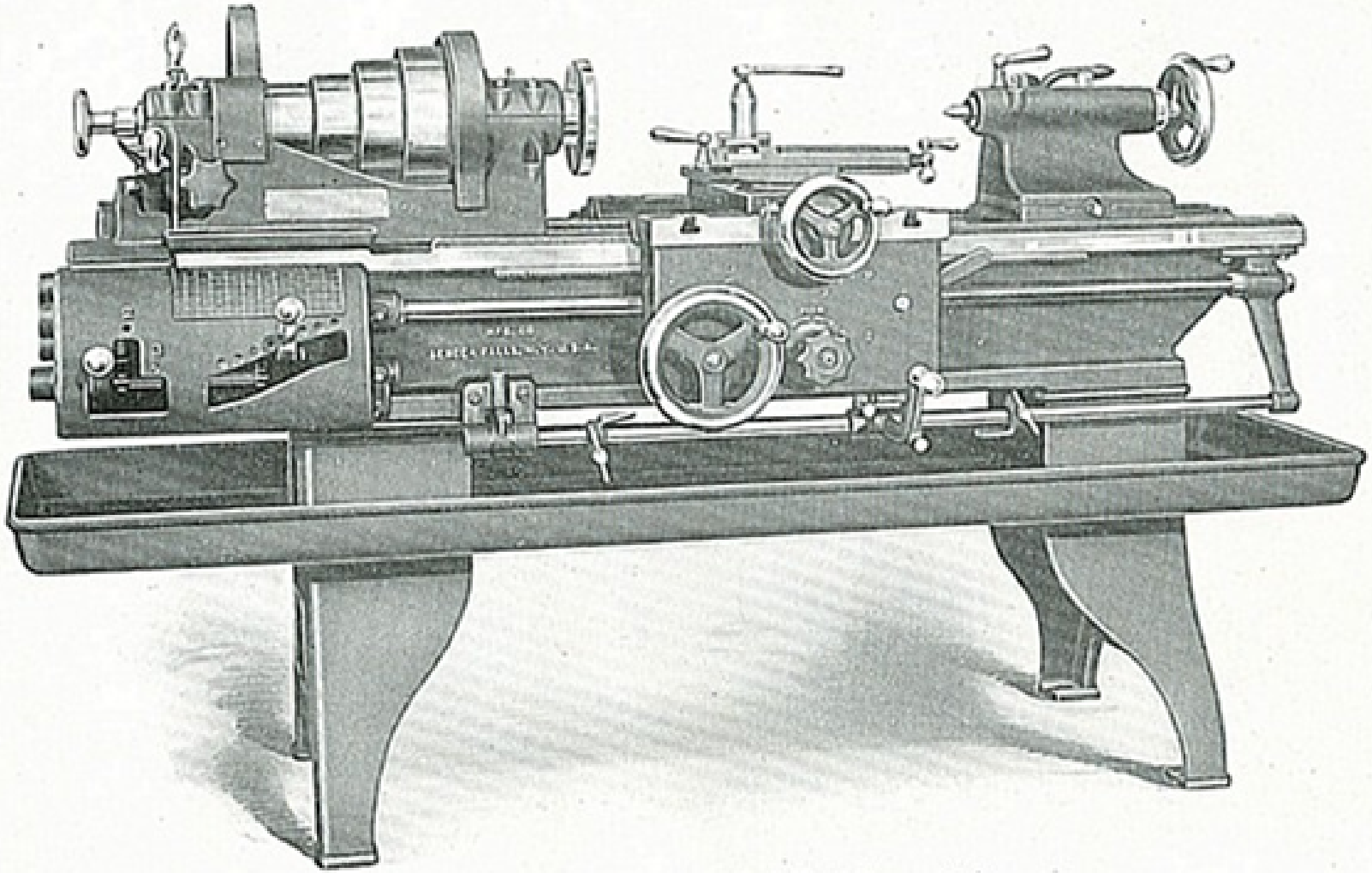
Detached Parts furnished with all 12, 14, and 16" Quick Change Lathes.

**Detached Parts**—Each lathe is furnished with plain and compound rests, large and small face plates, center rest, ~~follower rest~~, two hardened and ground point centers, friction countershaft and necessary wrenches.

**Extra Attachments**—(See pages 18 to 25). Thread Catching Dial. Transposing Gears for metric threads. Taper attachment, Draw-in Chuck with split collets 1-16" to ¼", Relieving attachment, Motor Drive. Oil Pan and Pump. Semi-Finished Chuck Face Plates 4" to 8" diameter, drilled, tapped and hub faced true with thread, ready to screw on head spindle, will be furnished at additional price. Also can furnish for 12" lathe, European Tool-Post, Double Tool Block, Carriage Turret, Automatic Turret on bed, Carriage stop with 4 adjustable rods, Milling and Gear-Cutting Attachments, see pages 45 to 49 describing attachments for "Star" Lathes.

## 12, 14 and 16-Inch Quick Change

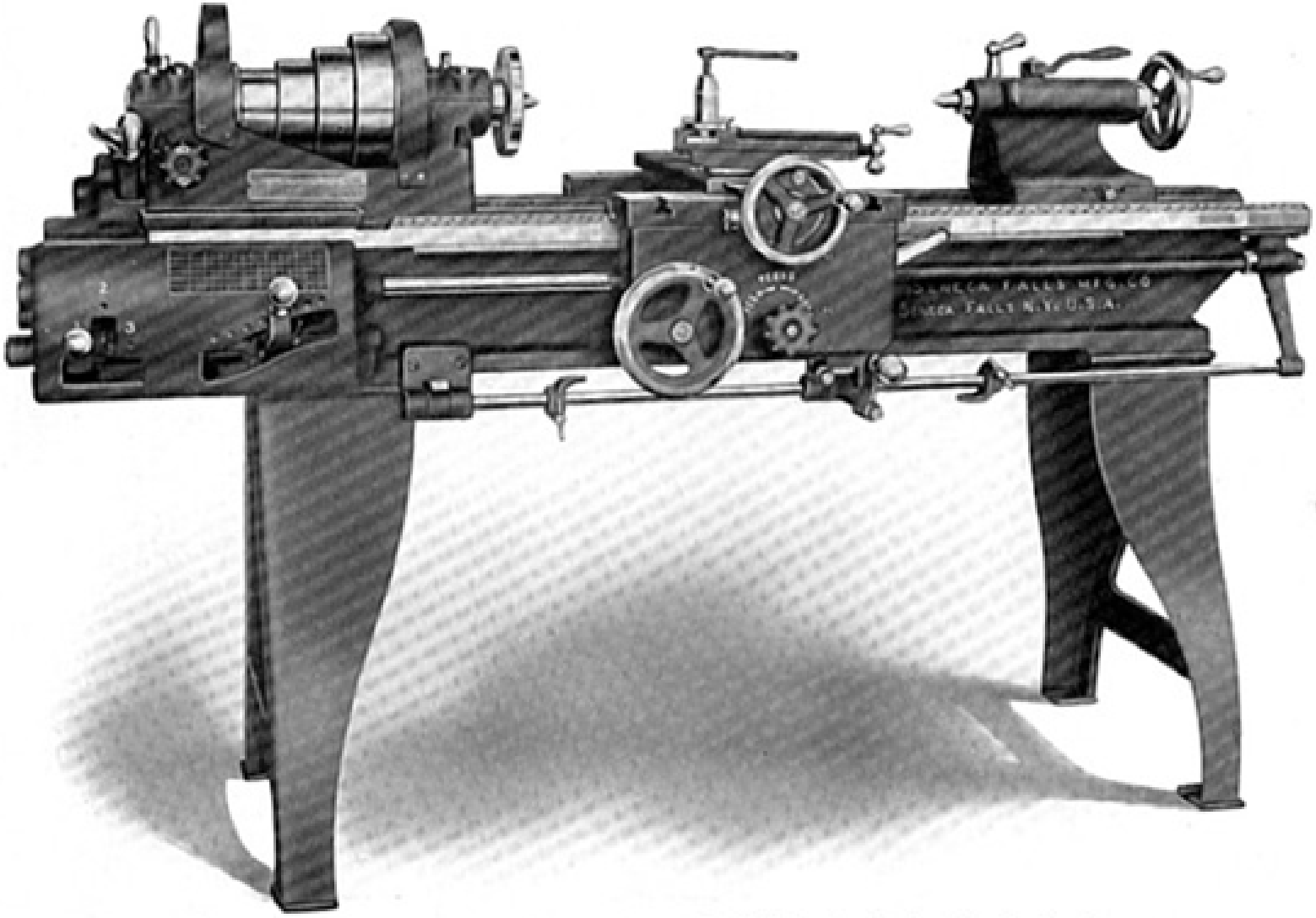
# "Seneca Falls" Screw-Cutting Engine Lathes



14"x6 ft. Style H, "Seneca Falls" Tool Room Lathe.
12" and 16" sizes are of the same general design, properly proportioned, see specifications pages 13, 15 and 17

## 12-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes



12"x6 ft. Style E Quick Change "Seneca Falls" Screw-Cutting Engine Lathe.

## 12-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

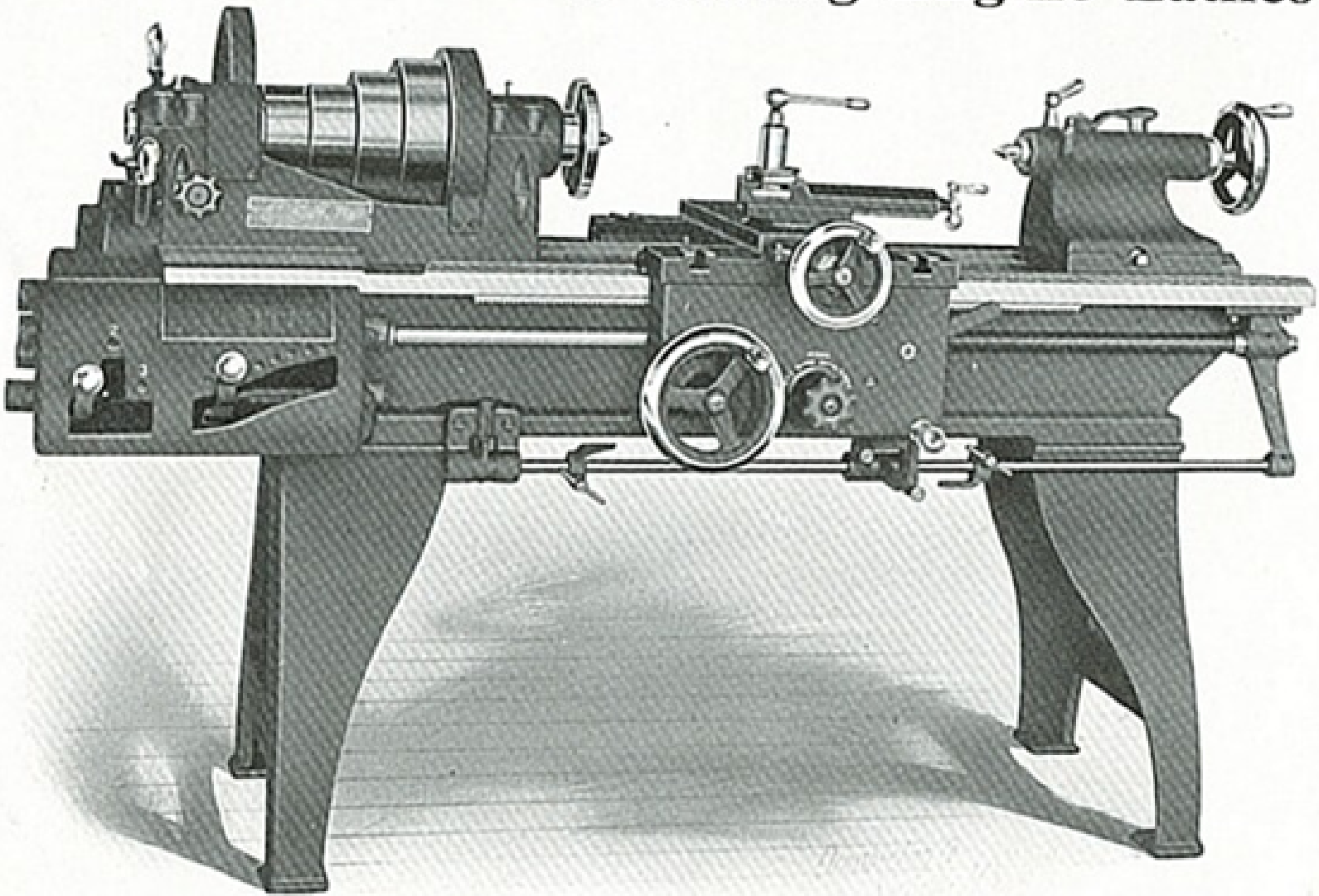
## Specifications

| | |
|---|---|
| Swing over bed, actual | 14 1/8 ~~13¼"~~ |
| Swing over carriage | 8 ¾ ~~7"~~ |
| Hole through head spindle | 1⅛" |
| Diameter spindle nose | 2" |
| Threads on spindle nose | 8 per inch |
| Front bearing of spindle | 2"x3½" |
| Back bearing of spindle | 1⅞"x2¼" |
| Cone pulley diameters | 3½", 5", 6½", 8" |
| Width of belt | 2" |
| Ratio of back gearing | 8.84 to 1 |
| Diameter of tail spindle | 1⅝" |
| Travel of tail spindle | 5½" |
| Taper of centers | No. 3 Morse |
| Length of carriage on bed | 16½" |
| Compound rest travels | 5" |
| Size of lathe tools | ½"x1" |
| Cuts threads per inch | 1½ to 92 |
| Feeds per revolution of head spindle | .0023" to .142" |
| Capacity of center rest | 4¼" |
| Size of pulleys on countershaft | 9½" ~~x~~ 2¾" |
| Speeds of countershaft | 125 and 165 |
| Speeds of head spindle | 10 to 471 |

| Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style E With Long Legs and Countershaft | | Style H With Oil Pan and Countershaft | |
|---|---|---|---|---|---|---|---|
| | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 12" x 5 ft. | 14 1/8 ~~13¼"~~ | 24" | 32" x 74" | 1325 lbs. | 52 | 1560 lbs. | 61 |
| 12" x 6 ft. | 14 1/8 ~~13¼"~~ | 36" | 32" x 86" | 1400 lbs. | 58 | 1670 lbs. | 68 |
| 12" x 8 ft. | 14 1/8 ~~13¼"~~ | 60" | 32" x 110" | 1550 lbs. | 70 | 1805 lbs. | 82 |
| 12" x 10 ft. | 14 1/8 ~~13¼"~~ | 84" | 32" x 134" | 1765 lbs. | 82 | | |

14-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes



14"x6 ft. Style E Quick Change "Seneca Falls" Screw-Cutting Engine Lathe.

## 14-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

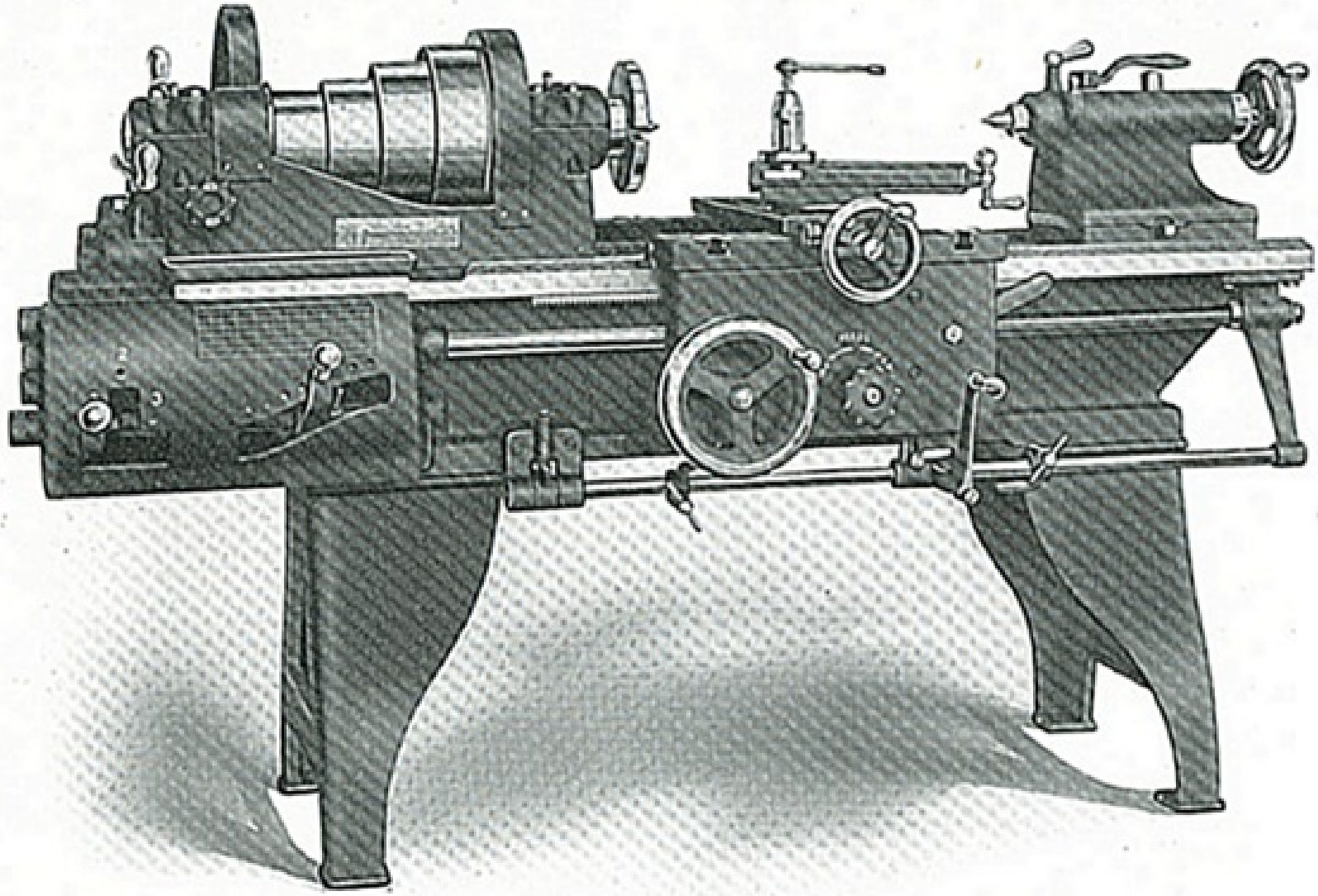
## Specifications

| | |
|---|---|
| Swing over bed, actual | 15¼" |
| Swing over carriage | 8½" |
| Hole through head spindle | 1¼" |
| Diameter spindle nose | 2⅜" |
| Threads on spindle nose | 7 per inch |
| Front bearing of spindle | 2½"x4½" |
| Back bearing of spindle | 1⅞"x3¼" |
| Cone pulley diameters | 3⅛", 5⅝", 7⅞", 9" |
| Width of belt | 2½" |
| Ratio of back gearing | 9.51 to 1 |
| Diameter of tail spindle | 1⅞" |
| Travel of tail spindle | 6¾" |
| Taper of centers | No. 3 Morse |
| Length of carriage on bed | 18½" |
| Compound rest travels | 5½" |
| Size of lathe tools | ½"x1" |
| Cuts threads per inch | 1½ to 92 |
| Feeds per revolution of head spindle | .0023" to .144" |
| Capacity of center rest | 4½" |
| Size of pulleys on countershaft | 12"x4⅛" |
| Speeds of countershaft | 125 and 165 |
| Speeds of head spindle | 9 to 470 |

| Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style E With Long Legs and Countershaft | | Style H With Oil Pan and Countershaft | |
|---|---|---|---|---|---|---|---|
| | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 14" x 5 ft. | 15¼" | 18" | 34" x 76" | 1725 lbs. | 65 | 1940 lbs. | 81 |
| 14" x 6 ft. | 15¼" | 30" | 34" x 88" | 1825 lbs. | 73 | 2085 lbs. | 90 |
| 14" x 8 ft. | 15¼" | 54" | 34" x 112" | 2025 lbs. | 87 | 2380 lbs. | 108 |
| 14" x 10 ft. | 15¼" | 78" | 34" x 136" | 2300 lbs. | 101 | | |
| 14" x 12 ft. | 15¼" | 102" | 34" x 160" | 2500 lbs. | 115 | | |

16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes



16"x6 ft. Style E Quick Change "Seneca Falls" Screw-Cutting Engine Lathe.

## 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

## Specifications

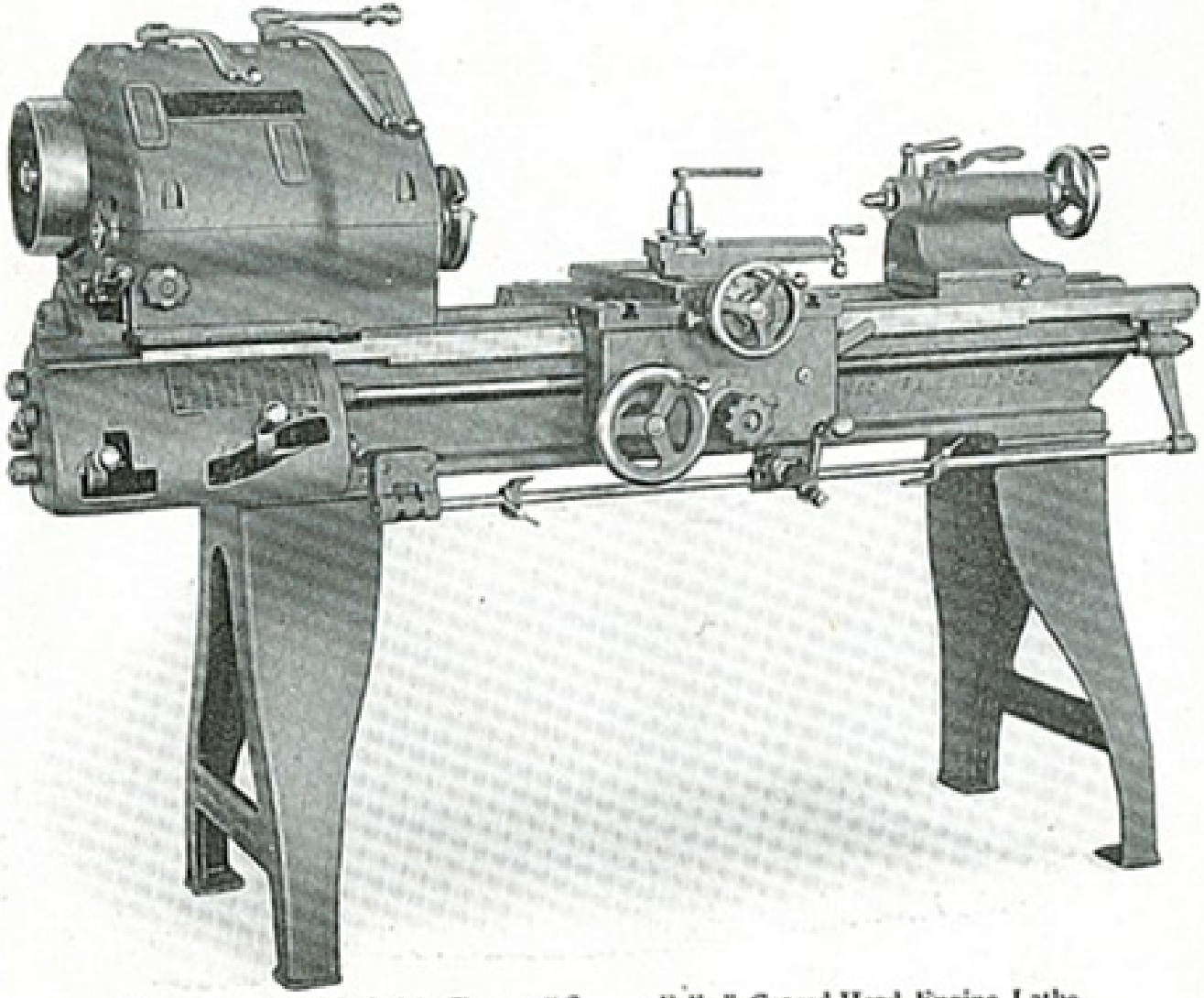
| | | | |
|---|---|---|---|
| Swing over bed, actual | 17¼" | Travel of tail spindle | 8¼" |
| Swing over carriage | 9⅝" | Taper of centers | No. 3 Morse |
| Hole through head spindle | 1⅜" | Length of carriage on bed | 21" |
| Diameter spindle nose | 2⅝" | Compound rest travels | 6" |
| Threads on spindle nose | 6 per inch | Size of lathe tools | ⅝"x1¼" |
| Front bearing of spindle | 2¾"x4⅛" | Cuts threads per inch | 1½ to 92 |
| Back bearing of spindle | 2⅛"x3⅛" | Feeds per revolution of head spindle | .0026" to .160" |
| Cone pulley diameters | 4⅛", 6⅛", 8½", 10⅞" | Capacity of center rest | 5" |
| Width of belt | 3" | Size of pulleys on countershaft | 14"x4⅝" |
| Ratio of back gearing | 10.97 to 1 | Speeds of countershaft | 125 and 165 |
| Diameter of tail spindle | 2⅝" | Speeds of head spindle | 8 to 509 |

| Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style E With Long Legs and Countershaft | | Style H With Oil Pan and Countershaft | |
|---|---|---|---|---|---|---|---|
| | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 16" x 6 ft. | 17¼" | 24" | 38" x 89" | 2500 lbs. | 92 | 2885 lbs. | 105 |
| 16" x 8 ft. | 17¼" | 48" | 38" x 113" | 2760 lbs. | 110 | 3270 lbs. | 125 |
| 16" x 10 ft. | 17¼" | 72" | 38" x 137" | 3020 lbs. | 129 | | |
| 16" x 12 ft. | 17¼" | 96" | 38" x 161" | 3360 lbs. | 147 | | |

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Geared-Head Engine Lathes

### Single Pulley Drive



12"x6 ft. Style EG Quick Change "Seneca Falls" Geared-Head Engine Lathe.
The 14" and 16" sizes are of the same design, properly proportioned.

## 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Geared-Head Engine Lathes

### Single Pulley Drive

The Geared-Head Single Pulley Drive Lathe, through its prompt, direct, convenient action, offers large opportunity for increased efficiency and production; spindle speed changes are under quick, easy control of three conveniently located hand levers operating five positive clutches, engaging at low speeds, and one powerful friction clutch on spindle for high speeds. Sliding and tumbler gears, as well as hollow shafts, with their consequent troubles are entirely eliminated.

The mechanism is enclosed in a box type of headstock, all gears are accurately cut from high-grade steel blanks, run quietly and make no more noise than a cone driven lathe. An oil pump is used for forced feed oiling system and insures proper lubrication at all times when pulley is in motion.

Eight mechanical changes of spindle speeds in geometrical progression are obtained with driving pulley running at constant speed in one direction. Pulley may be belted direct to line shaft; this obviates the need of using countershaft, (which is not included in regular equipment) as reverse motion of spindle is not necessary and reverse mechanism for carriage is controlled by hand lever on apron and without the use of objectionable bevel gears. When desired, a double friction countershaft will be furnished at an extra price; this will give sixteen forward spindle speeds. An index plate is attached to headstock, showing positions of levers and spindle speeds.

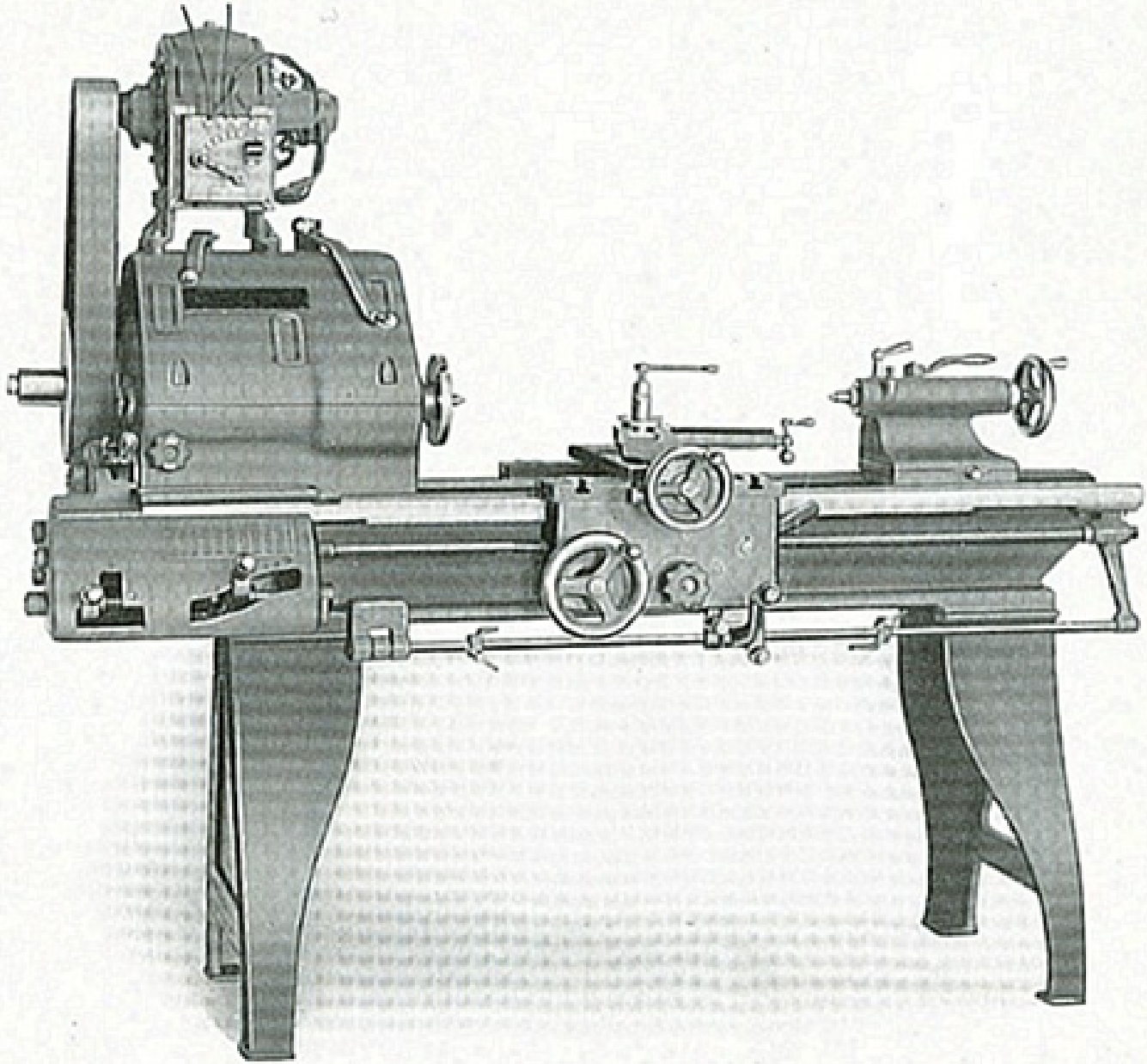
This geared head can be easily changed to a direct connected motor drive (see pages 20-21) by changing the drive pulley which is geared up for motor and mounting motor on the top, which is planed off so that motor may be added at any time. All regular attachments, draw-in chuck, ~~relieving attachment,~~ etc., can be used with the geared head lathe.

## Specifications

| | 12" Lathe | 14" Lathe | 16" Lathe |
|---|---|---|---|
| Drive pulley | 9½"x2⅞" | 10"x3¼" | 11"x3¼" |
| Width of belt | 2¾" | 3" | 3½" |
| Speed of drive pulley for general work | 200 | 250 | 200 |
| Speeds of head spindle | 14 to 450 | 12 to 450 | 12 to 425 |

## Motor Drive for 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes



12"x6 ft. Style EM Quick Change "Seneca Falls" Engine Lathe with Motor Drive.
The 14" and 16" sizes are of the same design, properly proportioned.

## Motor Drive for 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

The cut on opposite page shows our standard type of direct connected Motor Drive for 12″, 14″ and 16″ Seneca Falls Quick Change Lathes. It is adaptable to all varying conditions of different users. The equipment includes our Geared Head-stock, (see pages 18-19), having eight mechanical changes of spindle speeds in geometrical progression.

The motor is mounted on top of headstock and is connected to drive shaft pulley by wide belt which may be always kept at proper tension by easily adjusted belt tightener. By this method sufficient power may be transmitted to drive lathe to the full capacity that work or tool will endure, and will prevent damage to both lathe and motor that is sometimes chargeable to less flexible gear or chain drive connections.

Any make of motor for direct or alternating current, either constant or variable speed, may be used. With a constant speed motor, preferably running between 1100 and 1200 R.P.M., eight spindle speeds are available. When desired, a variable speed motor may be used, which will greatly increase the number of spindle speeds which may be changed while taking a cut. A reversible motor is not required for thread cutting, etc., as carriage reverse mechanism is operated by hand lever on apron.

When the motor is furnished by customer, it should be sent without pulley and sliding base, arranged to run counter-clockwise when facing pulley end. When lathes are ordered with motors mounted they are belted ready for use.

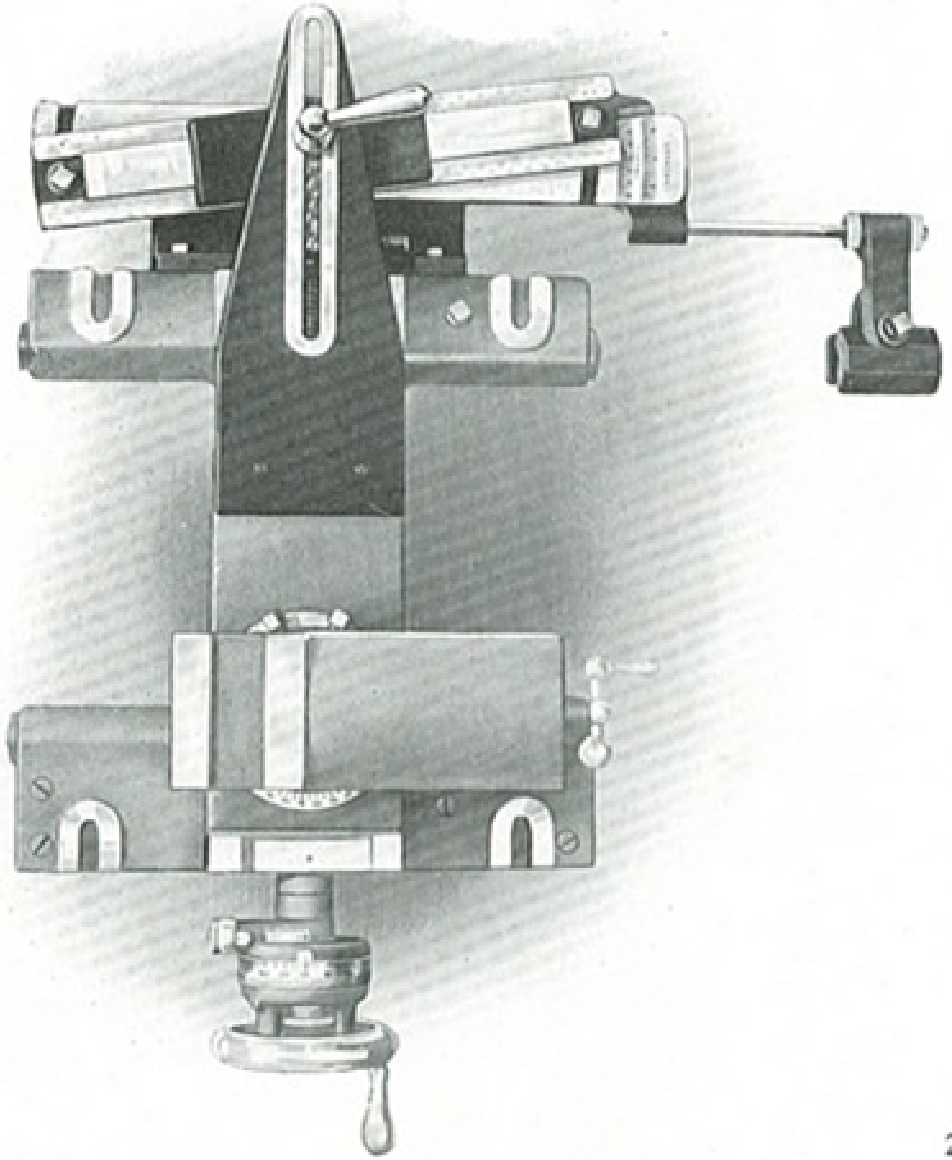
When asking for prices and ordering motors do not fail to specify whether direct or alternating current is used. If direct, give voltage; if alternating, give voltage, phase and cycle.

## Specifications

| | 12″ Lathe | 14″ Lathe | 16″ Lathe |
|---|---|---|---|
| Size of motor recommended | 1 to 2 H.P. | 1½ to 3 H.P. | 2 to 4 H.P. |
| Size of pulley on drive shaft | 11 x 3 1/4 ~~9¼″ x 2¾″~~ | 12″x3¾″ | 13″x4¼″ |
| Width of belt | 2¾″ | 3½″ | 4″ |
| Speed of pulley on drive shaft, for general work | 400 | 530 | 400 |
| Speeds of head spindle | 14 to 450 | 12 to 456 | 12 to 425 |

## Attachments for 12, 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

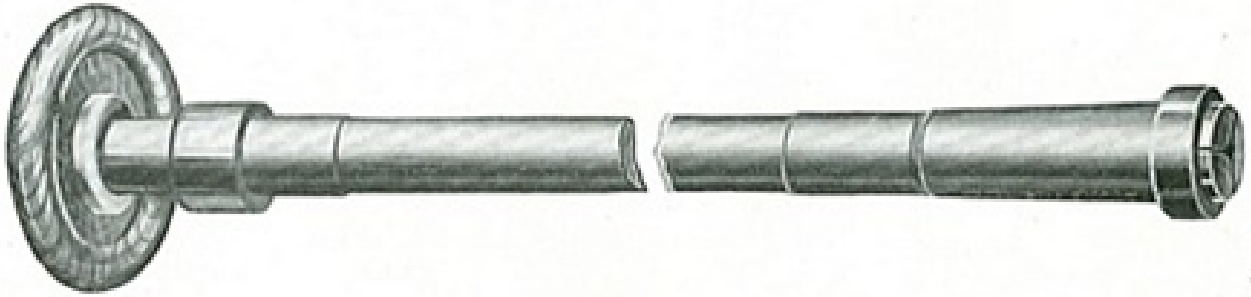


**Taper Attachment** for 12″, 14″ and 16″ "Seneca Falls" Quick Change Lathes, is secured to back of carriage, travels with it, is always in position ready for use and is available the full length of bed; can be used with plain and compound rests. The swivel guide bar is graduated in degrees and inches, facilitating quick and accurate adjustments from 0 to 3 inches taper per foot, and from 0 to 7 degrees each way of center line. The micrometer cross-feed stop may be used on taper work.

All carriages are fitted so that taper attachment may be ordered at any time, when ordered with lathe it will be properly adjusted and ready for work before leaving the factory.

## Attachments for 12, 14 and 16-Inch Quick Change

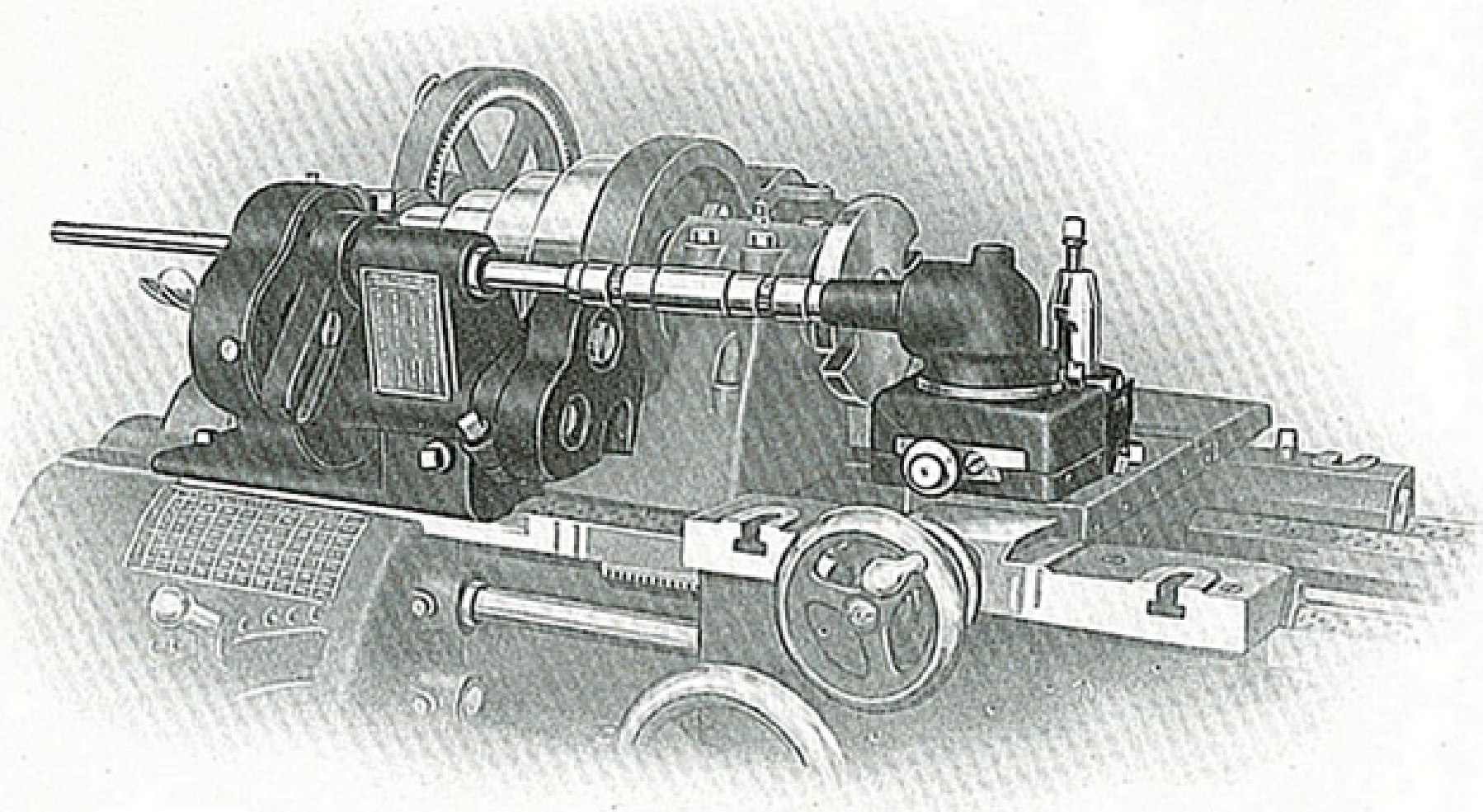
# "Seneca Falls" Screw-Cutting Engine Lathes



**Draw-in Chuck Attachment** for 12″, 14″ and 16″ "Seneca Falls" Quick Change Lathes. The regular equipment consists of draw-in tube with handle attached, bushing for collets, guard for nose of spindle and one split collet. The bushing and collets are made from tool steel, hardened and ground. No. 3 Split collets any size from 1-16″ to ¾″ may be used. This attachment may be made to fit collets of other makes without extra charge.

## Attachments for 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes



Relieving Attachment for 14" and 16" "Seneca Falls" Quick Change Lathes.

## Attachments for 14 and 16-Inch Quick Change

# "Seneca Falls" Screw-Cutting Engine Lathes

**Relieving Attachment** for 14″ and 16″ "Seneca Falls" Quick Change Lathes, may be used for accurately backing off an unusually large variety of shapes of milling cutters, end mills, counterbores, hobs, taps, etc. It can not also be used with Geared Head-stock.

The tool slide is attached to cross slide of carriage in place of tool block or compound rest, and will operate at any angle through an arc of 180 degrees—90 degrees each way from the center of carriage. The stroke can be adjusted while machine is in motion to give any amount of relief, from 0 to ¼ inch, the amount is indicated by graduations on adjusting knob.

The driving mechanism is attached to the bed in front of headstock and receives power from the head-gear. The number of strokes per revolution of work is governed by change gears. A set of gears is furnished giving 22 variations, including all numbers from 2 to 16 and even numbers from 18 to 30.

This attachment may be used in connection with the taper attachment and micrometer cross-feed stop, also with power cross and longitudinal feeds. Special cams can be used for turning elliptical and other irregular shapes.

The attachment may be so easily and quickly disconnected, that it does not interfere with the regular operation of the lathe; the tool slide is removed by loosening binding screw and pulling out splined shaft from driving mechanism, then throw the driving gear out of contact with head-gear.

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## 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes

**"Star" Lathes** are made in three sizes, rating 9″, 11″ and 13″ swing; in design and construction they conform to the highest type of standard engine lathe practice, and for rated capacity are unsurpassed; they are furnished with floor legs, bench legs, or mounted on oil pan, for belt or direct connected motor drive; also with floor legs and foot power, and a full line of conventional attachments. Their range for exacting service is wide and they are exceptionally desirable for use in the laboratory, tool room, experimental departments, and for light, accurate commercial work.

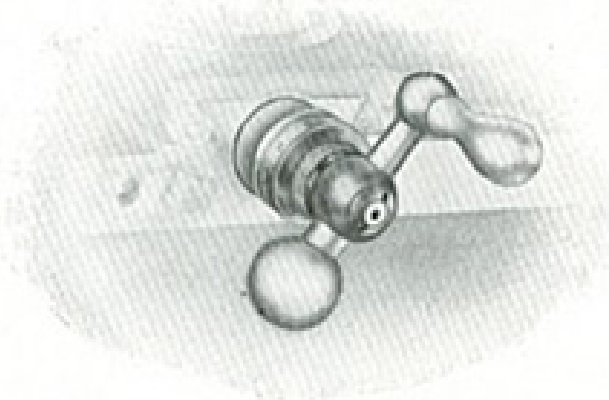
"Star" Lathes are protected by the following patents, viz: Aug. 13, 1895, Nov. 5, 1895, Feb. 25, 1896, Apr. 14, 1896, March 17, 1903, May 18, 1909, Jan. 11, 1910, others pending.

**Headstock.** Web pattern, hollow spindle made from 60-65 carbon crucible steel, accurately ground to size, revolving in ample hand-scraped ring-oiling bearings, nose is threaded part way only to facilitate changing chucks and face plates without damaging threads and to insure perfect fit.

All spindles have large hole suitable for draw-in chuck. Cone is finished inside and outside, perfectly balanced for high speeds, is locked to head-gear by improved push-pin and may be secured or released instantly without using wrench, back spindle and change gears are fully guarded.

**Tailstock.** Curved, off-set pattern, with long bearing on bed and base, large spindle with self-discharging center, side adjustment for taper turning, oil well and center oiler.

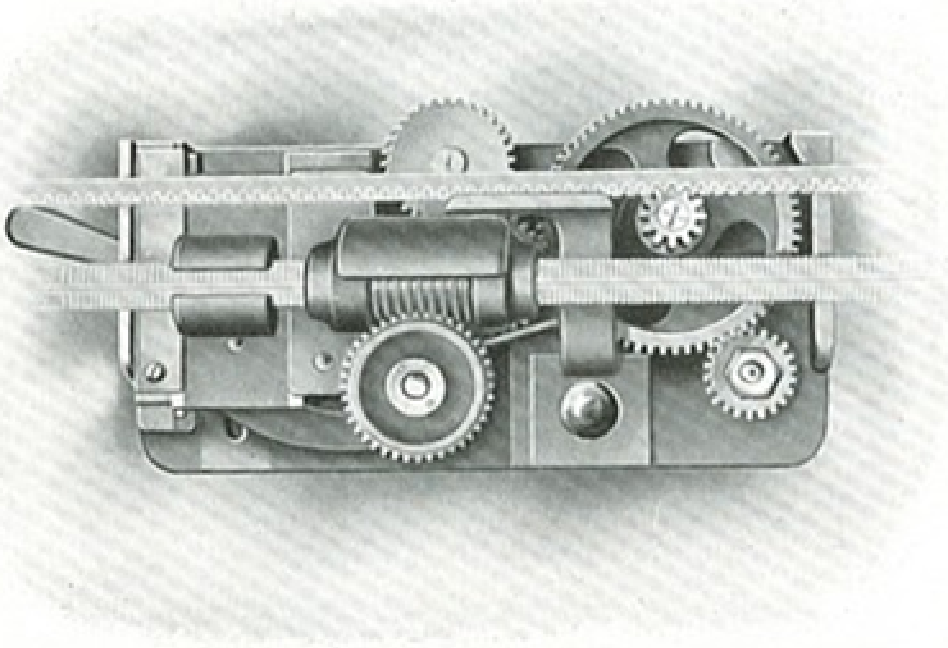
**Carriage.** Has substantial bearing on ways, is gibbed front and rear; a convenient locking device secures carriage to bed when using cross-feed. Cross-feed screw is supplied with micrometer collar graduated to read in thousandths of an inch, secured by friction spring and readily set to any position.



Micrometer Collar on Cross-Feed Screw. Note absence of protruding nut to injure the knuckles.

## 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



Inside view of Apron for "Star" Lathes.

Cross-feed screw and ways are efficiently protected from chips and dirt by a guard full length of slide. All carriages are arranged for taper attachment which can be affixed at any time. On request we will drill and tap four 7-16″ holes in top of carriage of 9″ lathe for clamping work. T-slots are provided on all 11″ and 13″ lathe carriages.

**Rests.** Plain and compound rests readily interchange, one cross slide and tool-post answering for both rests; a new binding device (patented) facilitates quick changes and rigidly binds either rest to cross slide, which is graduated 180 degrees. Plain rest is furnished with all lathes, compound rest may be ordered with lathe or at any future time.

**Tool-Post.** Has patented collar and shoe, which exclude all dirt and chips, and admits of quick, easy and secure adjustment of tool. If desired, will furnish European Tool-Post in place of regular tool-post without extra charge.

**Feeds.** Our improved power cross and longitudinal feeds are actuated by phosphor bronze worm, receiving power from head spindle through spur gears and lead-screw, which is splined, simply acting as a feed rod; the only wear on threads of lead-screw is when actually cutting screws. Feeds may be thrown in or out by turning hand knob on apron, which operates friction clutch, shifting reverse lever in headstock will feed in or out, right

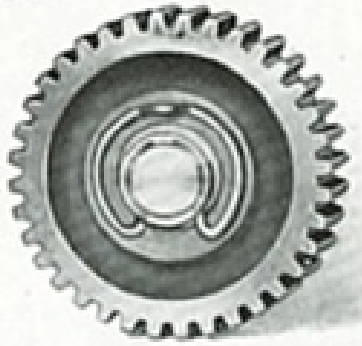
# "Star" Screw-Cutting Engine Lathes

or left, or throw entirely out of engagement. The automatic power cross-feed is indispensable for a large variety of work, it insures accurate results and smooth surfaces when facing and other similar service.

**Screw-Cutting.** Extremely wide range, cutting all standard threads, right and left from 3 to 72 per inch, including 11½ and 27. When desirable to cut both standard and metric threads, can furnish (for slight advance in price) transposing gears and index for cutting International Standard Metric threads from 0.5 mm. to 8 mm.

**Lead-Screw.** Is carefully cut in special lathe with master screw, which is frequently tested. If desirable to cut only metric threads, can supply metric lead-screw and index, for standard metric threads, in place of regular and at same price.

**Bed.** Box section, correctly proportioned and thoroughly braced by cross webs. Rack is one piece of steel accurately cut.



Split Spring Washers for holding change gears.

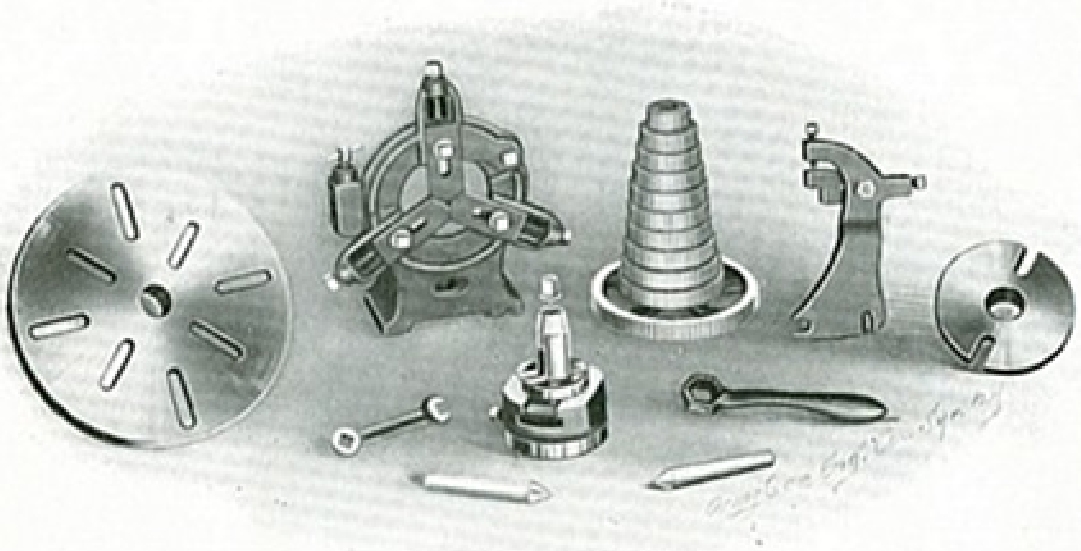
## The Seneca Falls Mfg. Co. Seneca Falls, N.Y., U.S.A.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thread | 3 | 3¼ | 3½ | 4 | 4½ | 5 | 5½ | 6 | 6½ | 7 | 8 | 9 | 10 | 11 | 11½ | 12 | 13 | 14 | 15 |
| Stud | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| Compound | | 24/48 | 24/48 | | | | | | | | | | | | | 60/40 | | | |
| Screw | 24 | 52 | 56 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 32 | 36 | 40 | 44 | 46 | 32 | 52 | 56 | 60 |
| Thread | 16 | 18 | 20 | 22 | 24 | 26 | 27 | 28 | 30 | 32 | 36 | 40 | 42 | 44 | 48 | 56 | 60 | 64 | 72 |
| Stud | 24 | 24 | 24 | 24 | 24 | 24 | 32 | 24 | 24 | 24 | 24 | 24 | 32 | 24 | 24 | 24 | 24 | 36 | 32 |
| Compound | | | | | | | 96/48 | | | 96/48 | 96/48 | 96/48 | 96/48 | 96/48 | | 96/48 | 96/48 | 48/24 | 48/24 |
| Screw | 32 | 36 | 40 | 44 | 48 | 52 | 36 | 56 | 60 | 32 | 36 | 40 | 56 | 44 | 96 | 56 | 60 | 96 | 96 |

Regular Index Plate furnished with 9", 11" and 13" "Star" Lathes.

## 9, 11 and 13-Inch

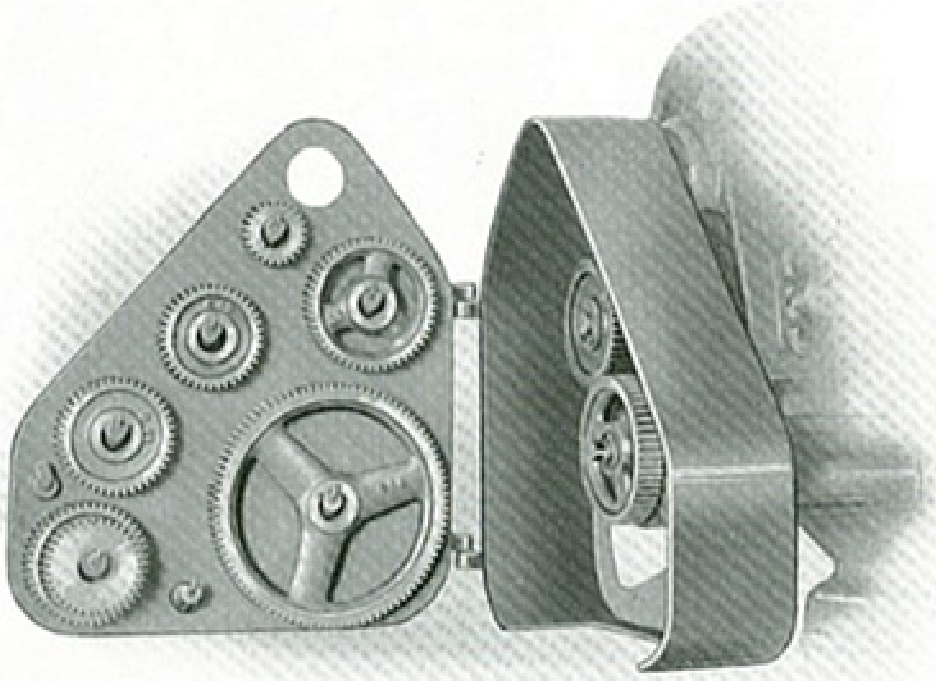
# "Star" Screw-Cutting Engine Lathes



Detached Parts furnished with all 9", 11" and 13" "Star" Lathes.

**Detached Parts.** Each lathe is regularly furnished with large and small face plates, center rests, follow rest, two point centers hardened and ground, center oiler, full set of change gears and drop forged tool-post wrench.

**In General.** All gears are fully guarded. The door of change gear guard has pegs for holding loose gears. Change gears have rounded edges to avoid injuring the hands. Patented split spring washers hold change gears in place and facilitate quick shifting. All adjusting screws have a uniform size head to fit tool-post wrench. Screws, nuts and small parts liable to become bruised, are case hardened. Cylindrical surfaces are ground, sliding surfaces hand scraped to perfect bearing and ample facilities are provided to compensate for wear.

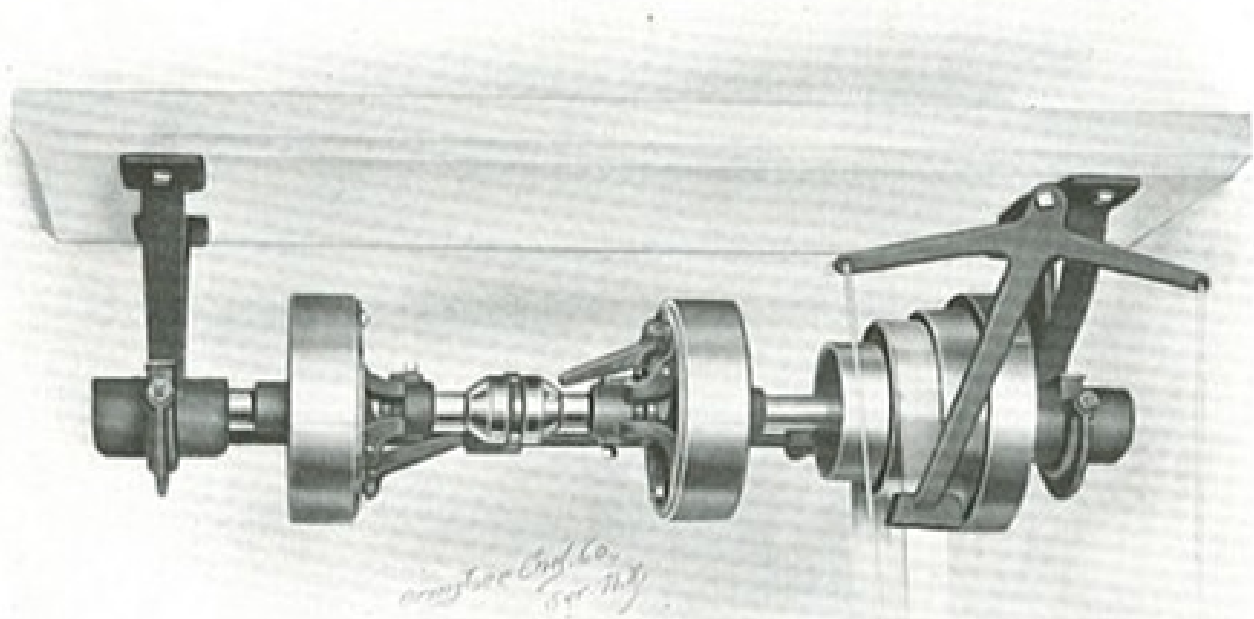


Guard for change gears on all 9", 11" and 13" "Star" Lathes also provides place to keep loose gears.

## 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes

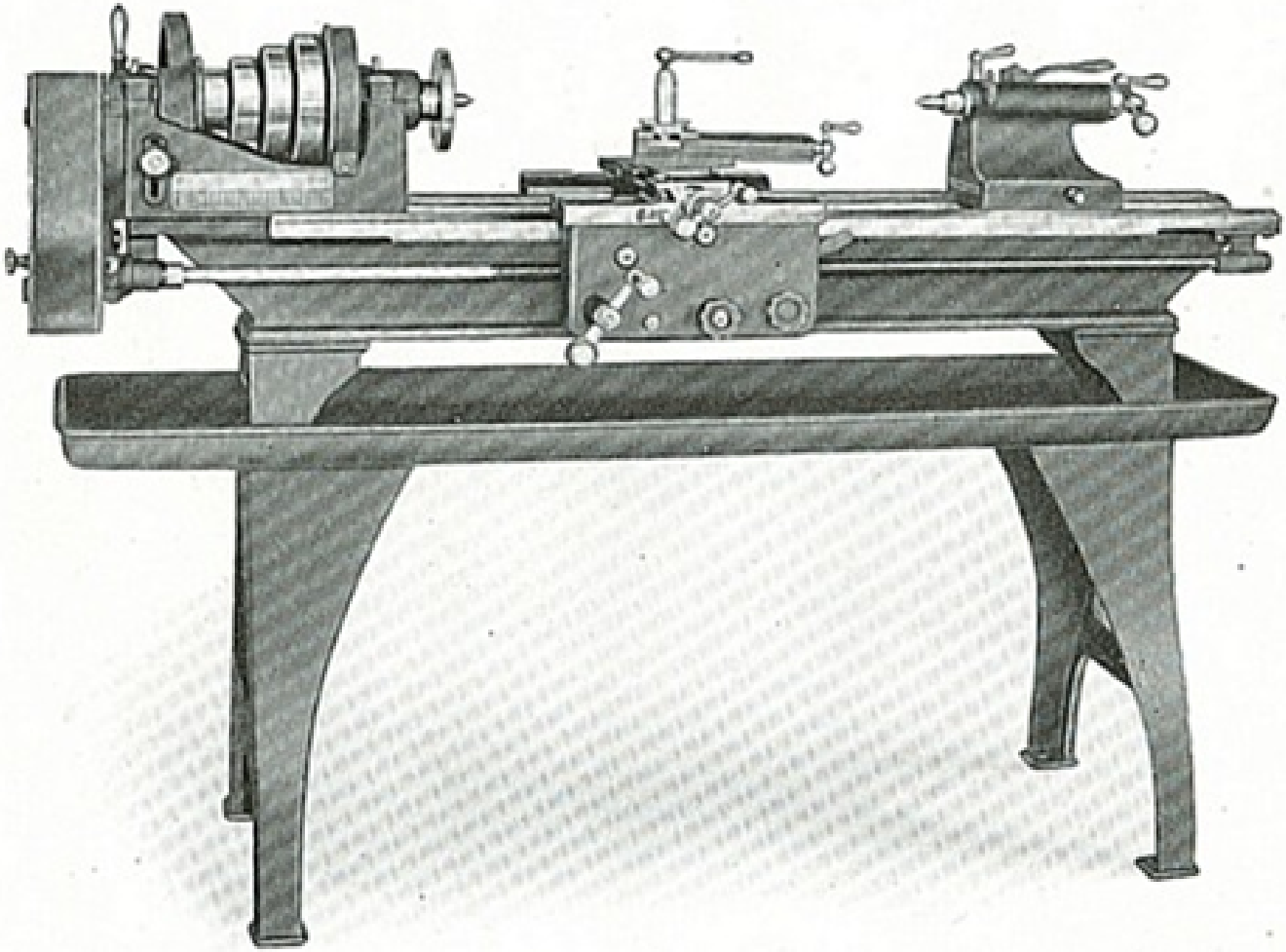
**Countershaft.** Has improved clutch pulleys (patented) with large friction surface on rim of pulley, wear on friction parts when pulley is running idle is eliminated and the usual countershaft troubles reduced to a minimum. Hangers have large ring-oiling shaft bearings, adjustable for alignment. The cone belt shifter for 9″ and 11″ "Star" Lathes has quick action and will be found very convenient, especially with high ceilings. The cone belt shifter is not furnished for 13″ "Star" Lathes.



**Extra Attachments.** (See pages 40 to 50) Motor Drive, Transposing Gears for cutting metric threads, Thread-Catching Dial, European Tool-Post, Blocking, Taper Attachment, Draw-in Chuck, Automatic Draw-in Chuck and Rod Feed Attachment, Double Tool Block, Carriage Turret, Automatic Turret on Bed, Carriage Stop, with four adjustable rods, Automatic Carriage Stop, Milling and Gear-Cutting Attachment, Hand Rests, Screw Chuck, Cup and Spur Centers, Square, Female and Crotch Centers, Drill Pad, Semi-Finished Chuck Face Plates 3″ to 8″ diameter, drilled, tapped and hub faced true with threads, ready to screw on head spindle will be furnished at additional price.

## 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



No. 30, style H, 11" swing, 5 ft. bed; has plain and compound rests, oil-pan and countershaft. Oil-pan can be furnished with 9", 11" and 13" lathes, see specifications pages 35, 37 and 39.

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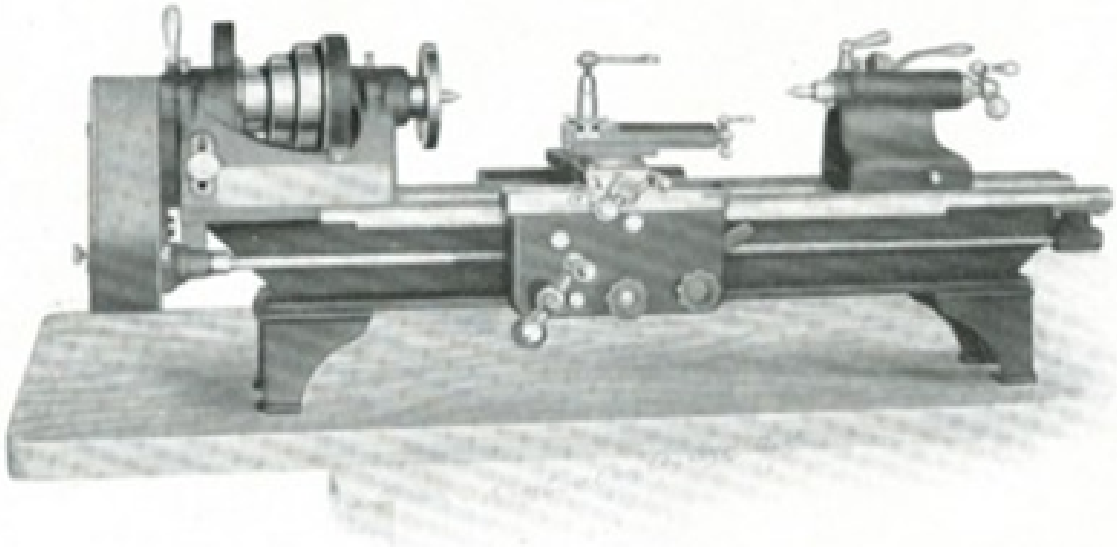
## 9, 11 and 13-Inch

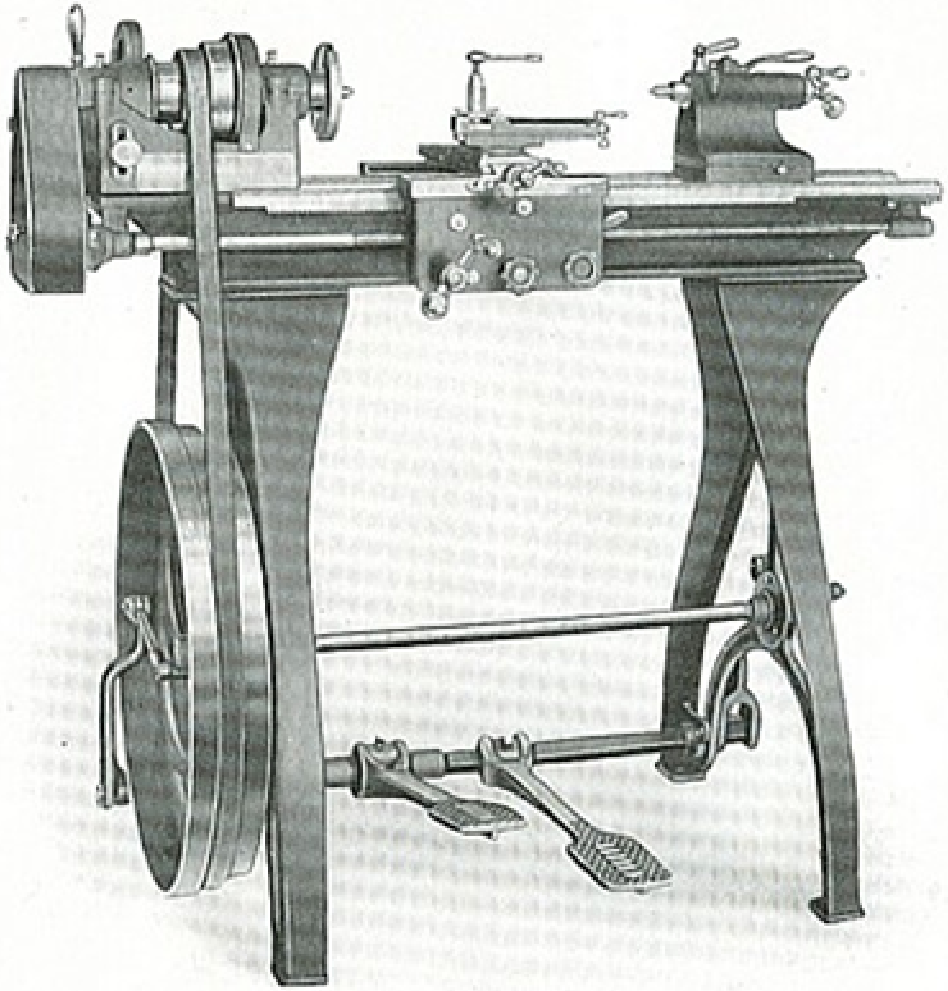
# "Star" Screw-Cutting Engine Lathes



No. 10, style K, 9" swing, 4 ft. bed, has plain and compound rests, bench legs and countershaft.
11" lathes are also mounted on Bench legs, see specifications, pages 37, but 13" lathes are not furnished in this style.

9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



No. 10, style P, 9" swing, 4 ft. bed, has plain and compound rests, floor legs and foot-power.
11" lathes can be furnished with foot-power but 13" lathes can not.

**Foot-Power.** (For 9" and 11" "Star" Lathes only). Our patented foot-motion produces greater power with less fatigue than any other kind in use. It consists of double treadles with walking motion. The treadles are adjustable and work alternately, being connected at opposite ends of the driving-wheel shaft, producing a strong, positive and continuous power. Can be started or stopped instantly and may be operated with both feet, sitting, or one foot, standing, as desired. This arrangement overcomes the objection of operator being confined to one position. The 13" "Star" Lathes cannot be furnished with foot-power.

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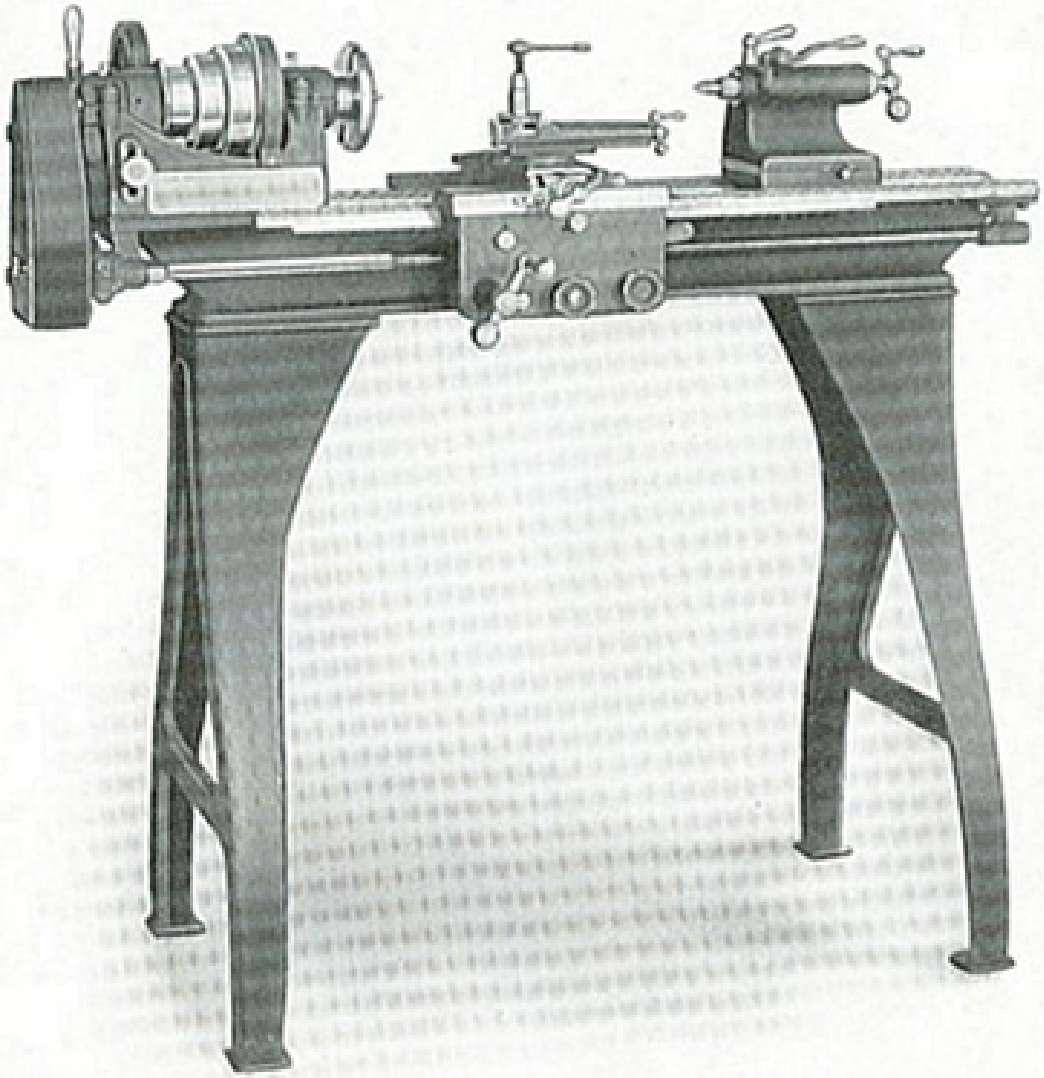
## 9-Inch

# "Star" Screw-Cutting Engine Lathes



No. 10 style F, 9" swing, 4 ft. bed, has plain and compound rests, long legs and countershaft.

## 9-Inch

# "Star" Screw-Cutting Engine Lathes

## Specifications

| | |
|---|---|
| Swing over bed, actual | 10⅛" |
| Swing over carriage | 5⅞" |
| Hole through head spindle | ⅞" |
| Diameter spindle nose | 1 1/16" |
| Threads on spindle nose | 12 per inch |
| Front bearing of spindle | 1 1/16"x2¾" |
| Back bearing of spindle | 1 1/16"x1¾" |
| Cone pulley diameters | 3 1/16", 4 1/16", 5 1/16" |
| Width of belt | 1¼" |
| Ratio of back gearing | 7 to 1 |
| Taper of centers | No. 2 Morse |
| Diameter of tail spindle | 1⅛" |
| Travel of tail spindle | 2¾" |
| Length of carriage on bed | 10⅜" |
| Compound rest travels | 3 1/16" |
| Size of lathe tools | ⅜"x¾" |
| Cuts threads per inch | 3 to 72 |
| Capacity of center rest | 3" |
| Size of pulleys on countershaft | 6"x1¾" |
| Speed of countershaft | 175 |
| Speeds of head spindle | 18 to 340 |

| Numbers of Lathes | Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style E With Long Legs and Countershaft | | Style H With Oil Pan and Countershaft | | Style K With Bench Legs and Countershaft | | Style P With Foot-Power | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 10 | 9" x 4 ft. | 10⅛" | 24" | 25" x 55½" | 405 lbs. | 16 | 455 lbs. | 18 | 340 lbs. | 12 | 470 lbs. | 20 |
| 20 | 9" x 5 ft. | 10⅛" | 36" | 25" x 67½" | 435 lbs. | 18 | 495 lbs. | 21 | 370 lbs. | 14 | 505 lbs. | 21 |

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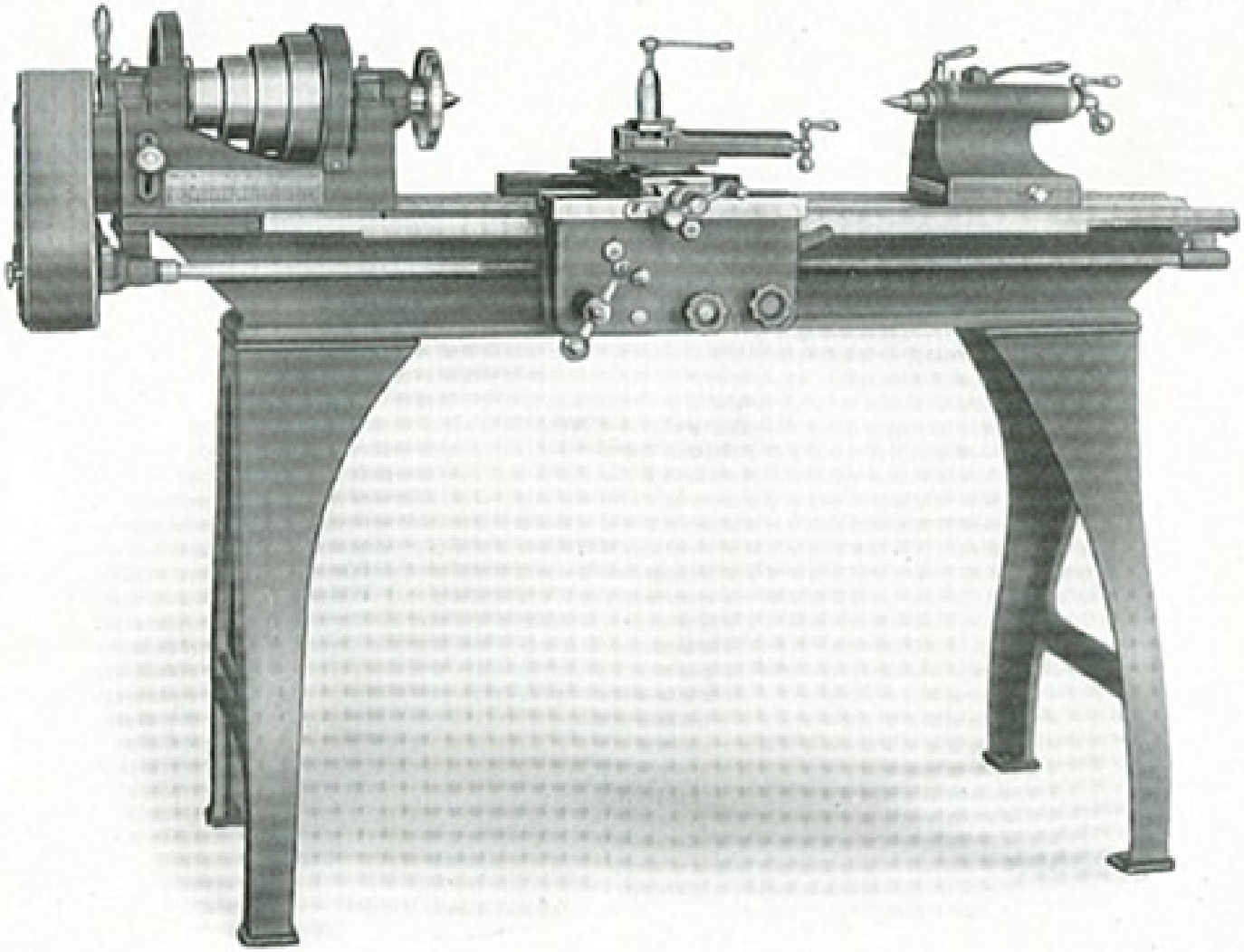
## 11-Inch

# "Star" Screw-Cutting Engine Lathes



No. 20, style E, 11" swing, 5 ft. bed, has plain and compound rests, long legs and countershaft.

## 11-Inch

# "Star" Screw-Cutting Engine Lathes

## Specifications

| | |
|---|---|
| Swing over bed, actual | 12⅛" |
| Swing over carriage | 7⅛" |
| Hole through head spindle | 1" |
| Diameter spindle nose | 1 3/16" |
| Threads on spindle nose | 10 per inch |
| Front bearing of spindle | 1 5/16"x3¼" |
| Back bearing of spindle | 1 7/16"x2⅛" |
| Cone pulley diameters | 3¼", 4½", 5¾", 7" |
| Width of belt | 1½" |
| Ratio of back gearing | 8.5 to 1 |
| Taper of centers | No. 2 Morse |
| Diameter of tail spindle | 1⅜" |
| Travel of tail spindle | 4⅛" |
| Length of carriage on bed | 13½" |
| Compound rest travels | 4¼" |
| Size of lathe tools | ½"x⅜" |
| Cuts threads per inch | 3 to 72 |
| Capacity of center rest | 3⅝" |
| Size of pulleys on countershaft | 8"x2¼" |
| Speed of countershaft | 165 |
| Speeds of head spindle | 15 to 445 |

| Numbers of Lathes | Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style E With Long Legs and Countershaft | | Style H With Oil Pan and Countershaft | | Style K With Bench Legs and Countershaft | | Style P With Foot-Power | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 25 | 11" x 4 ft. | 12⅛" | 22" | 27" x 62" | 670 lbs. | 23 | 755 lbs. | 26 | 590 lbs. | 16 | 710 lbs. | 27 |
| 30 | 11" x 5 ft. | 12⅛" | 34" | 27" x 74" | 710 lbs. | 26 | 815 lbs. | 29 | 630 lbs. | 19 | 760 lbs. | 30 |
| 40 | 11" x 6 ft. | 12⅛" | 46" | 27" x 86" | 750 lbs. | 29 | 875 lbs. | 33 | 670 lbs. | 23 | 810 lbs. | 33 |
| 50 | 11" x 7 ft. | 12⅛" | 58" | 27" x 98" | 790 lbs. | 32 | 935 lbs. | 37 | 710 lbs. | 26 | 870 lbs. | 37 |

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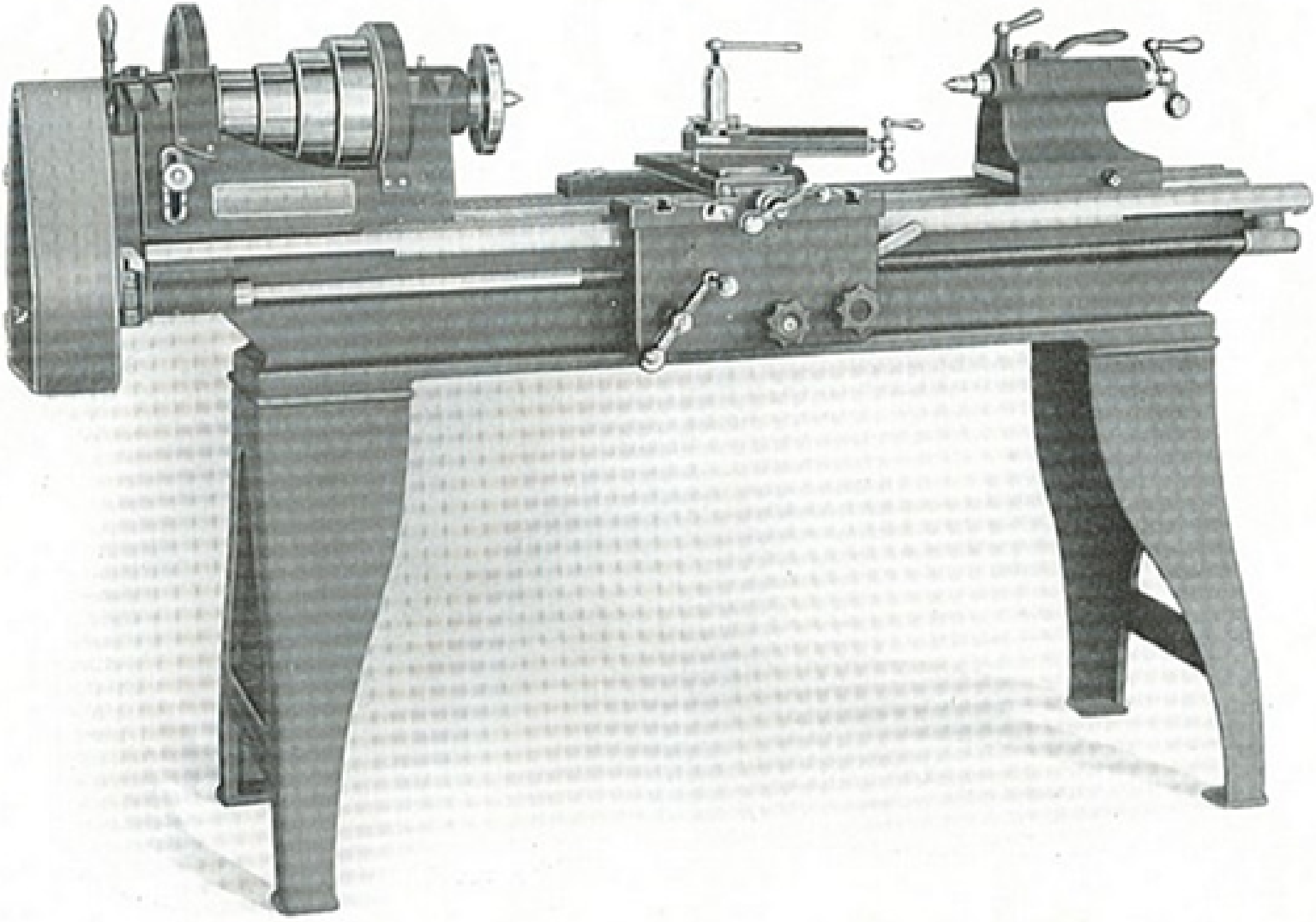
## 13-Inch

# "Star" Screw-Cutting Engine Lathes



No. 65, Style E, 13" swing, 6 ft. bed; has plain and compound rests, long legs and countershaft.

## 13-Inch

# "Star" Screw-Cutting Engine Lathes

## Specifications

| | |
|---|---|
| Swing over bed, actual | 14⅛" |
| Swing over carriage | 8⅛" |
| Hole through head spindle | 1⅛" |
| Diameter spindle nose | 2" |
| Threads on spindle nose | 8 per inch |
| Front bearing of spindle | 2"x4" |
| Back bearing of spindle | 1⅞"x2¼" |
| Cone pulley diameters | 3½", 5", 6½", 8" |
| Width of belt | 2" |
| Ratio of back gearing | 9.29 to 1 |
| Taper of centers | No. 3 Morse |

| | |
|---|---|
| Diameter of tail spindle | 1⅝" |
| Travel of tail spindle | 5⅛" |
| Length of carriage on bed | 15½" |
| Compound rest travels | 5" |
| Size of lathe tools | ½"x1" |
| Cuts threads per inch | 3 to 72 |
| Capacity of center rest | 4¼" |
| Size of pulleys on countershaft | 9½"x2¾" |
| Speed of countershaft | 150 |
| Speeds of head spindle | 11½ to 42 |

| Numbers of Lathes | Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style E With Long Legs and Countershaft | | Style H With Oil Pan and Countershaft | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 60 | 13" x 5 ft. | 14⅛" | 24" | 29" x 73" | 1145 lbs. | 47 | 1295 lbs. | 49 |
| 65 | 13" x 6 ft. | 14⅛" | 36" | 29" x 85" | 1220 lbs. | 51 | 1390 lbs. | 55 |
| 70 | 13" x 8 ft. | 14⅛" | 60" | 29" x 109" | 1375 lbs. | 61 | 1585 lbs. | 67 |
| 75 | 13" x 10 ft. | 14⅛" | 84" | 29" x 133" | 1600 lbs. | 75 | | |

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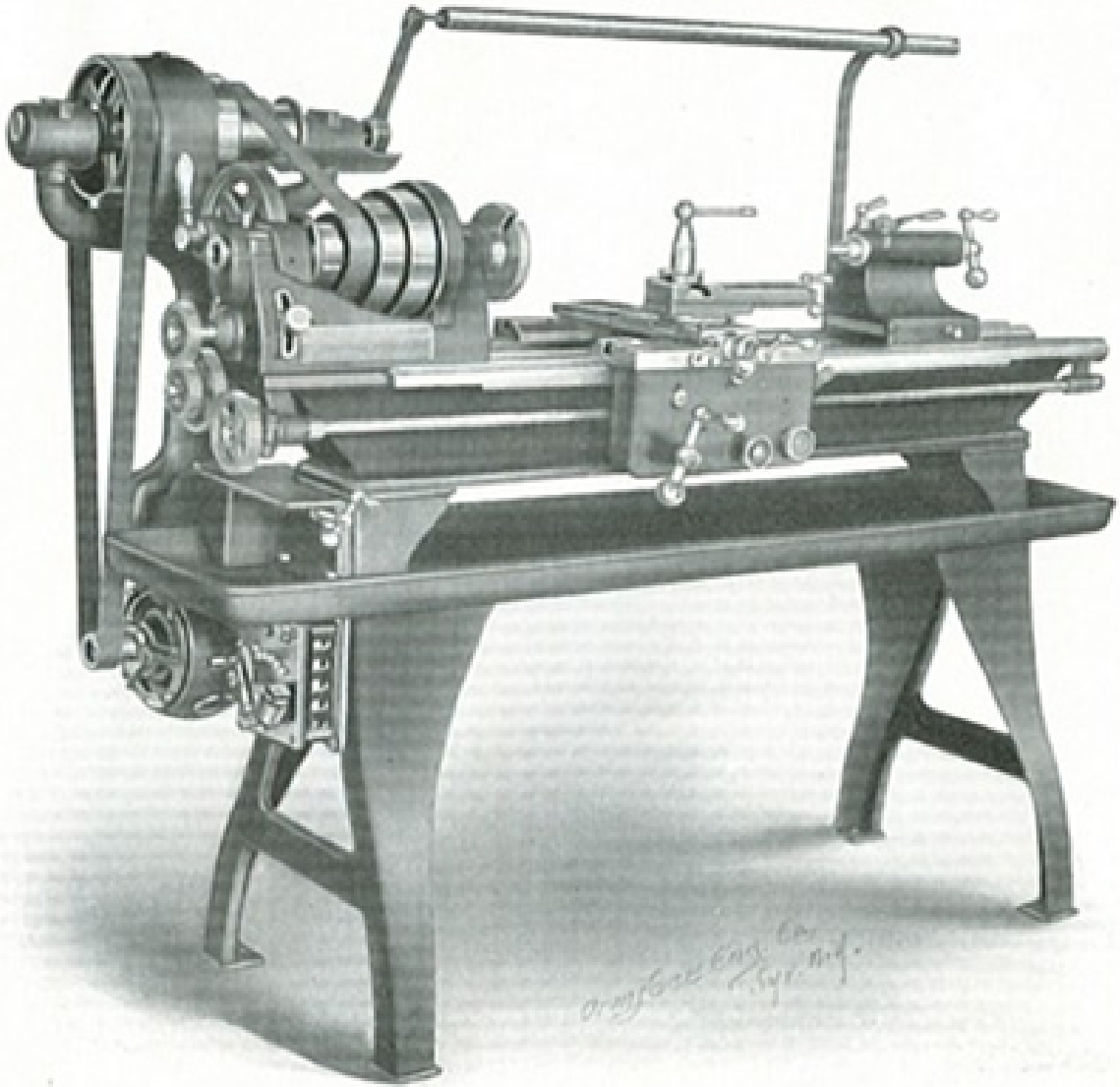
## Motor Drive for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



No. 30, "Star" Lathe, 11" swing, 5 ft. bed, with Electric Motor Drive.
Can furnish this motor drive for 9", 11" and 13" "Star" Lathes on long legs or oil-pan.

## Motor Drive for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes

**Electric Motor Drive** for 9″, 11″ and 13″ "Star" Lathes embodies new and individual features, is well proportioned, rigid, and powerful; not liable to damage or disarrangement, bearings are thoroughly lubricated by ring oilers, friction clutch mechanism and spur-reverse gears run in oil bath.

Power is transmitted from motor to drive shaft pulley, which runs constantly in one direction, and from drive cone to spindle cone by belts amply large to drive lathe to full capacity. Provision is made for quickly tightening belts, and they may be kept at proper tension until worn out, without shortening. By this method sufficient power may be transmitted to drive lathe to the full capacity that work or tool will endure, and will prevent damage to both lathe and motor that is sometimes chargeable to less flexible gear or chain drive connections.

Starting, stopping and reverse rotation of lathe spindle is controlled by shifting bar placed horizontally above lathe, within easy reach of the operator. Moving shifting bar to left imparts forward motion to lathe spindle and to right reverses; bringing shifting bar to center position stops lathe. The reverse speed is approximately double the forward motion.

Any constant speed motor, preferably running between 1,200 and 1,800 R. P. M. for either direct or alternating current may be used; this will give six changes of spindle speeds for 9″ lathe and eight changes for 11″ and 13″ lathes. If desired, a variable speed motor may be used which will increase the number of spindle speeds and for some kinds of work will greatly increase the output, as speeds may be changed while taking a cut.

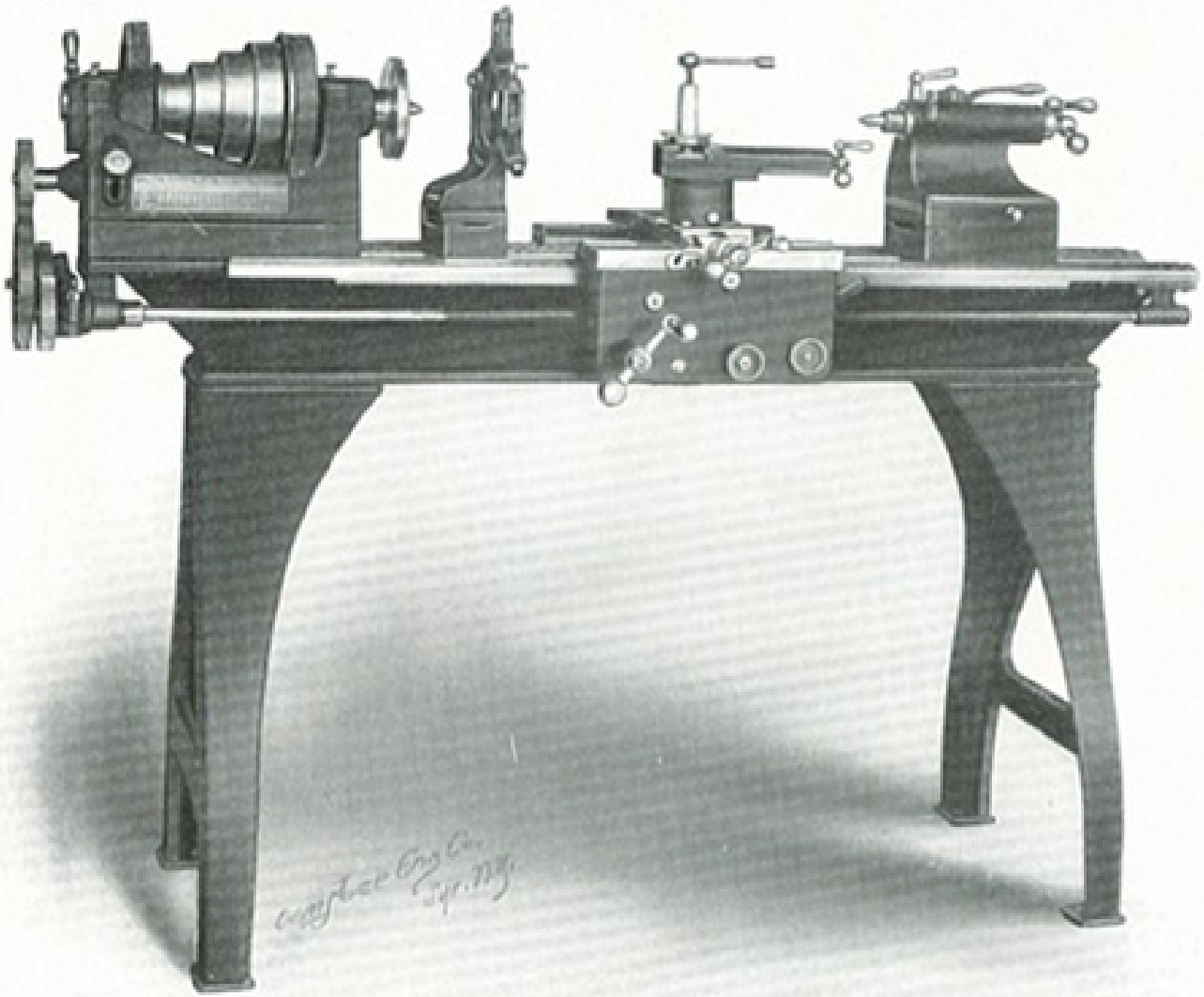
When the motor is furnished by customer, it should be sent without pulley and sliding base, arranged to mount with the feet upward and run counter clock-wise when facing the pulley end.

When lathes are ordered with motors mounted, they are belted ready for use. The motor drive attachment is fitted to lathe in lieu of furnishing countershaft. When asking for prices and ordering motors do not fail to specify whether direct or alternating current is used. If direct, give voltage; if alternating, give voltage, phase and cycle.

| | 9″ Lathe | 11″ Lathe | 13″ Lathe |
|---|---|---|---|
| Size of motor recommended | ½ H.P. | ¾ H.P. | 1½ H.P. |
| Size of pulley on drive shaft | 7″x1⅝″ | 8″x1⅞″ | 9″x2⅝″ |
| Speed of pulley on drive shaft | 455 RPM | 550 RPM | 535 RPM |
| Speeds of head spindle | 18 to 366 | 15 to 592 | 11½ to 557 |

## Attachments for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



2" Blocking on No. 30 "Star" Lathe (11"x5 ft.) increasing the swing 4 inches.

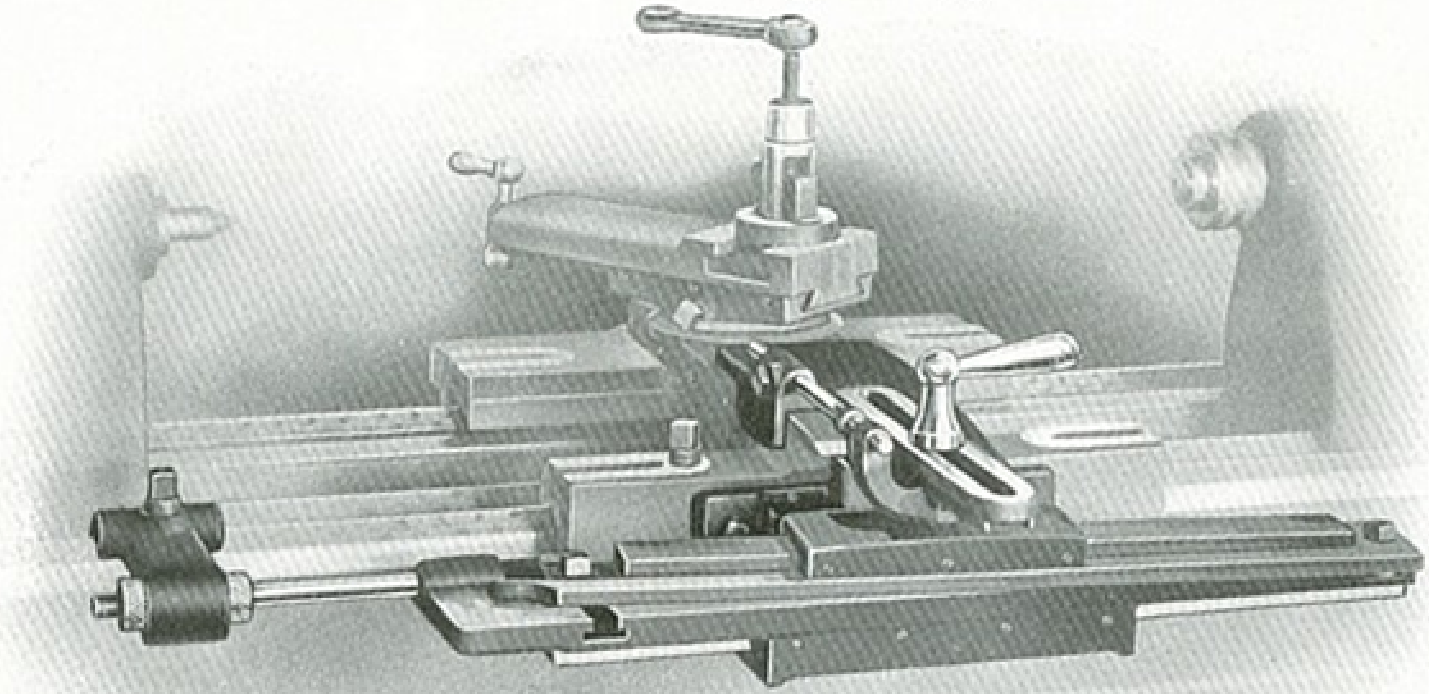
**Blocking.** (For 9", 11" and 13" "Star" Lathes). For raising head and tail stocks, plain, compound and center rests to increase the swing of lathe. We consider blocking up a lathe for special work superior to the gap-lathe. The blocking can be conveniently put on or removed and lathes used without blocking for all ordinary work. Blocking should be fitted to lathe at the factory.

Blocking 2 inches high for 9" and 11" Lathes increases swing 4 inches.

Blocking 3 inches high for 13" Lathe increases swing 6 inches.

## Attachments for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



**Taper Attachment** for 9″, 11″ and 13″ "Star" Lathes, is secured to back of carriage, travels with it, is always in position ready for use and is available full length of the bed; can be used with plain and compound rests. The swivel guide bar is graduated in degrees and inches, facilitating quick and accurate adjustments from 0 to 3 inches taper per foot and 0 to 7 degrees each way of center line. The cross-feed stop may be used on taper work.

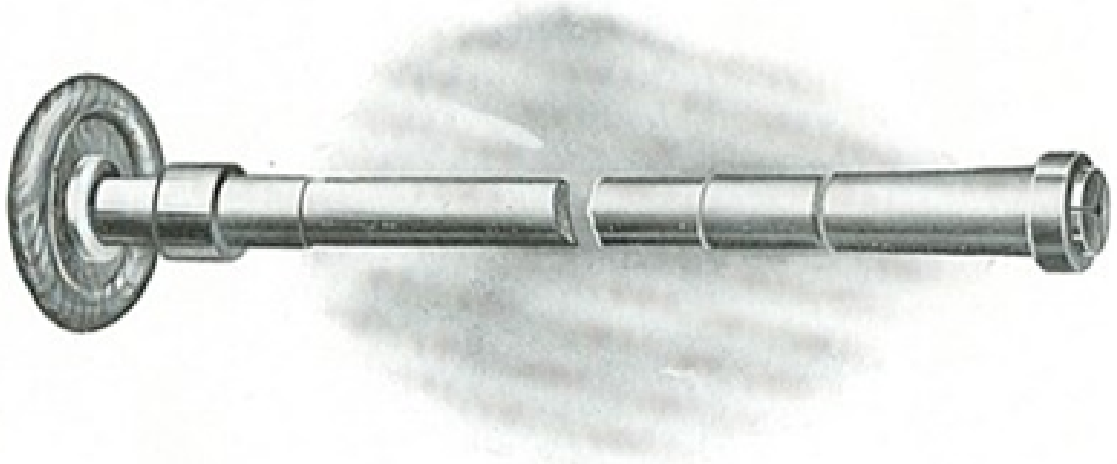
All carriages are fitted so that taper attachment may be ordered at any time; when ordered with lathe it will be properly adjusted and ready for work before leaving the factory.

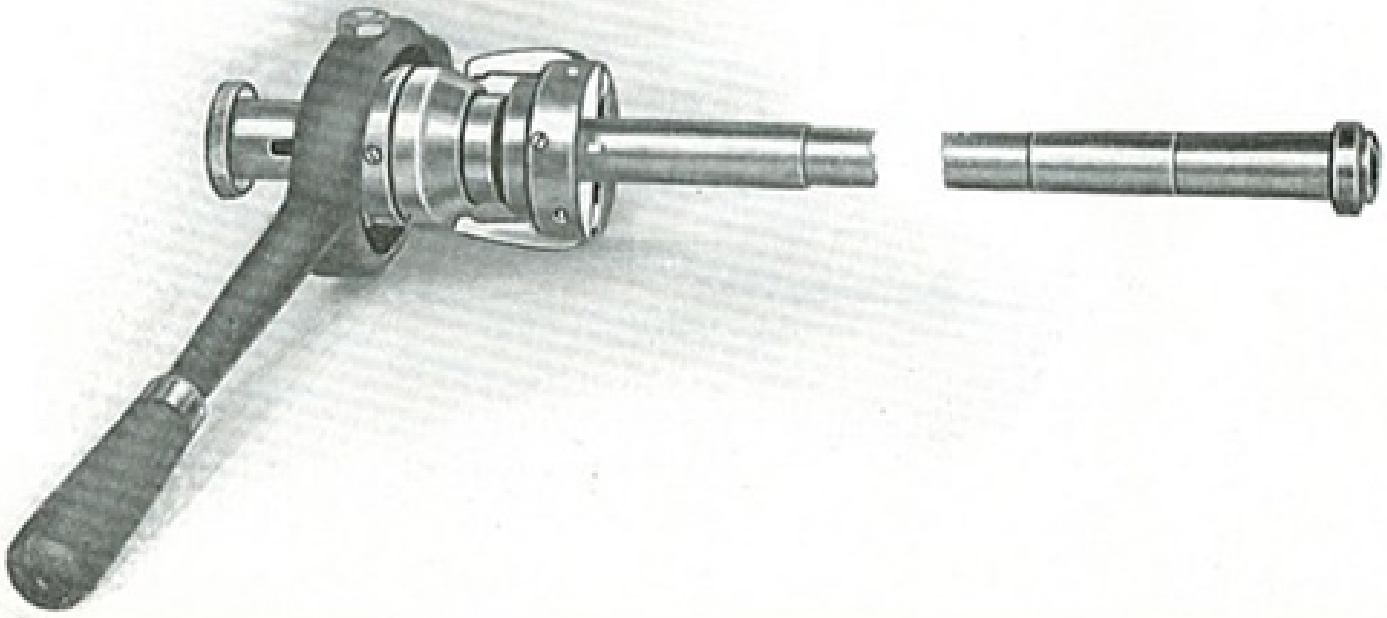
## Attachments for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes

**Draw-in Chuck Attachment** for 9″, 11″ and 13″ "Star" Lathes and 10″ Speed Lathes. The regular equipment consists of draw-in tube with handle attached, bushing for collets, guard for nose of spindle and one split collet. The bushing and collets are made from tool steel, hardened and ground.

No. 2 Split collets 1-16″ to 9-16″ may be used on 9″ and 11″ "Star" Lathes and 10″ Speed Lathes, also collets 37-64″ to ⅝″ counterbored allowing work to be inserted 2″ from front end. 13″ "Star" Lathes will take No. 3 collets 1-16″ to ¾″. Step chucks can be furnished, prices given on application, stating sizes wanted.





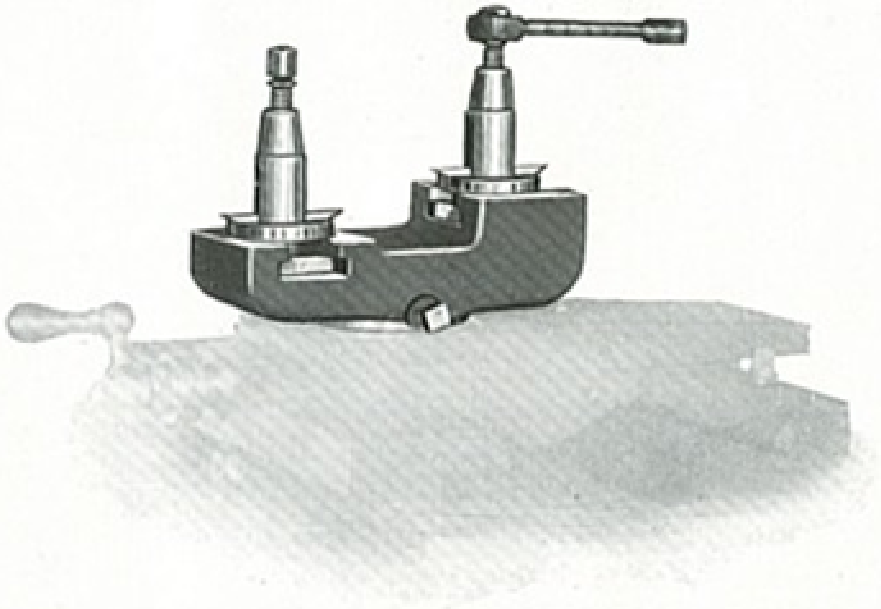
**Automatic Draw-in Chuck and Rod Feed Attachment** (For 9″ and 11″ "Star" Lathes). One stroke of lever releases chuck, feeds the rod forward and tightens chuck without stopping lathe. Valuable for rapidly manufacturing small parts from bar stock, No. 2 Collets and feed fingers 1-16″ to ½″ may be used. One each Collet and feed finger are furnished with attachment.

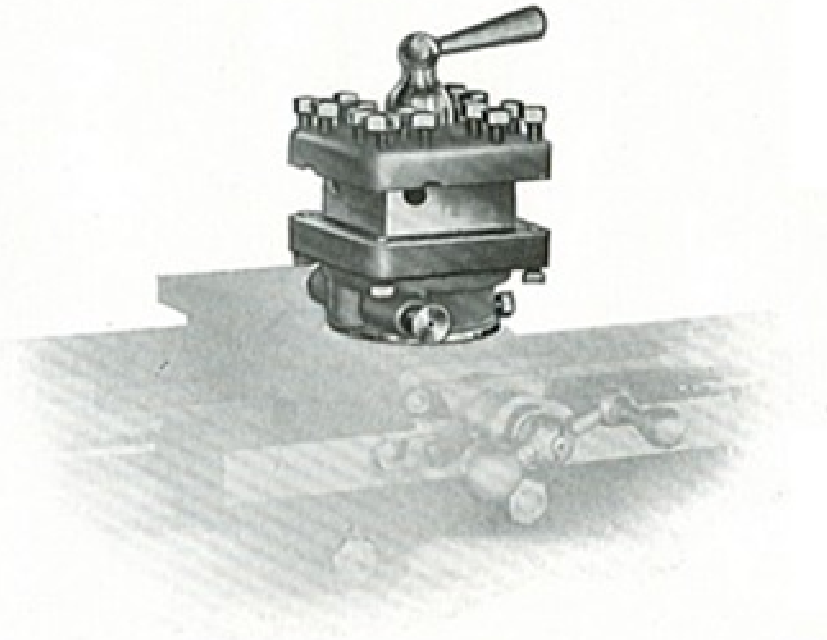
## Attachments for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes

**Carriage Turret Attachment** and Turret Tool-Post combined, (for 9″, 11″, 13″ "Star," also 12″ Quick Change Lathes). Is used on cross slide of lathe and easily interchanges with plain and compound rests, has holes for tools with round shanks and binding screws for four regular lathe tools and provision is made for adjusting the tools to proper height. This attachment may be ordered with lathe or at any later time.

| | 9″ Lathe | 11″ Lathe | 12″ & 13″ Lathe |
|---|---|---|---|
| Diameter of holes . . | ½″ | ½″ | ½″ |
| Size of Lathe tools . . | ⅜″x¾″ | ½″x⅞″ | ½″x1″ |





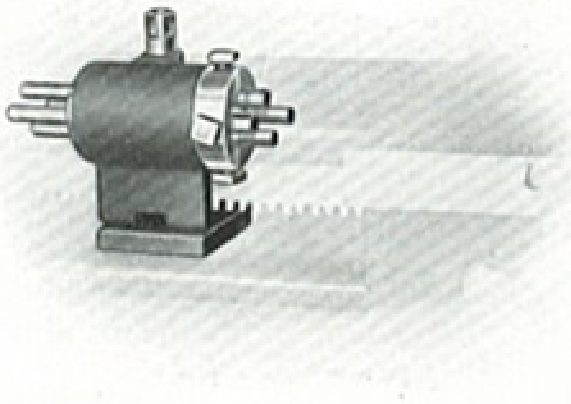
**Double Tool Block** or cutting off and forming slide (for 9″, 11″, 13″ "Star," also 12″ Quick Change Lathes). Attaches to cross slide and easily interchanges with plain and compound rest, is furnished with one tool-post only as the regular tool-post sent with lathe may be used. The tool in rear tool-post is used inverted.

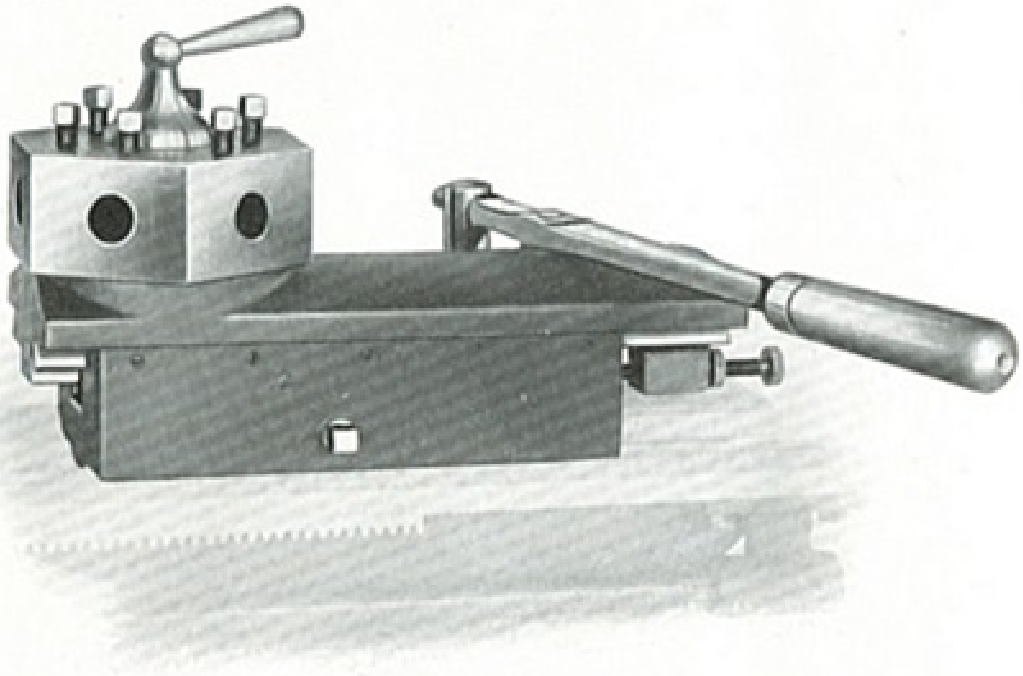
## Attachments for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes

**Automatic Turret Attachment** (For 9″, 11″, 13″ "Star," and 12″ Quick Change Lathes). Hexagon Turret Head revolves automatically and is quick in action. The face may be tapped for bolting on special tools. A hole through turret post permits bar to run through head when machining long pieces, an adjustable stop is provided at rear end of slide. Hand wheel is furnished on 12″ and 13″ sizes in place of feed lever. This attachment may be ordered with lathe or at any later time.

| | 9″ Lathe | 11″ Lathe | 12″ & 13″ Lathe |
|---|---|---|---|
| Diameter of turret | 5¼″ | 6¼″ | 7¾″ |
| Face of turret | 3″x2¼″ | 3⅝″x2¾″ | 4½″x3″ |
| Diameter of holes in turret | ⅞″ | 1″ | 1⅛″ |
| Center of hole to top of slide | 1¾″ | 1⅞″ | 2″ |
| Travel of slide | 3¾″ | 5¼″ | 6¾″ |

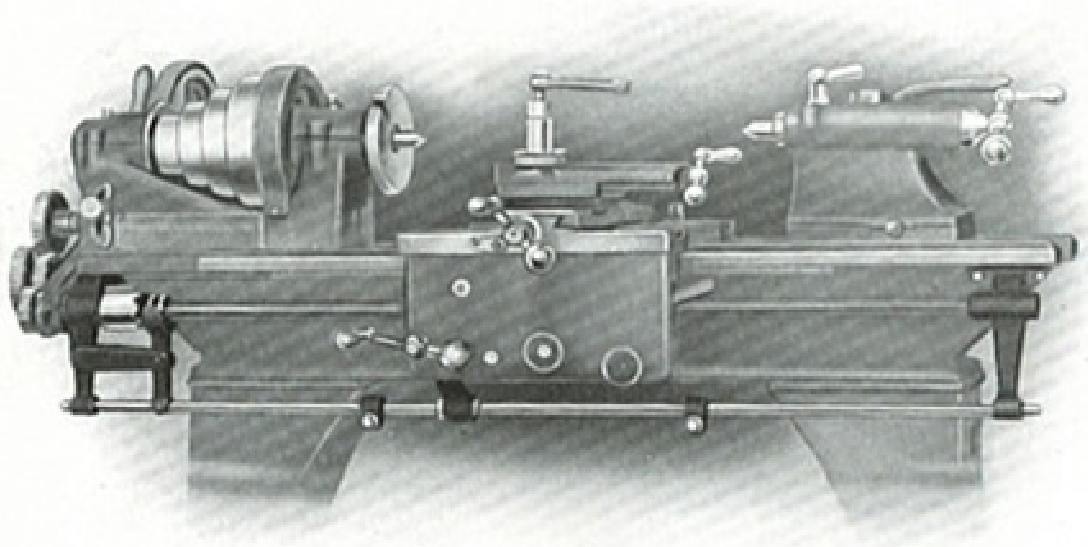




**Carriage Stop** with four adjustable rods. (For 9″, 11″, 13″ "Star" and 12″ Quick Change Lathes). Is clamped to bed, has revolving cylinder with four adjustable stop rods, the cylinder is revolved by hand and held in position by detent spring and ball. This attachment is a great time saver, when facing and turning duplicate pieces; it saves measuring for each operation and insures uniform dimensions.

## Attachments for 9, 11 and 13-Inch

# "Star" Screw-Cutting Engine Lathes



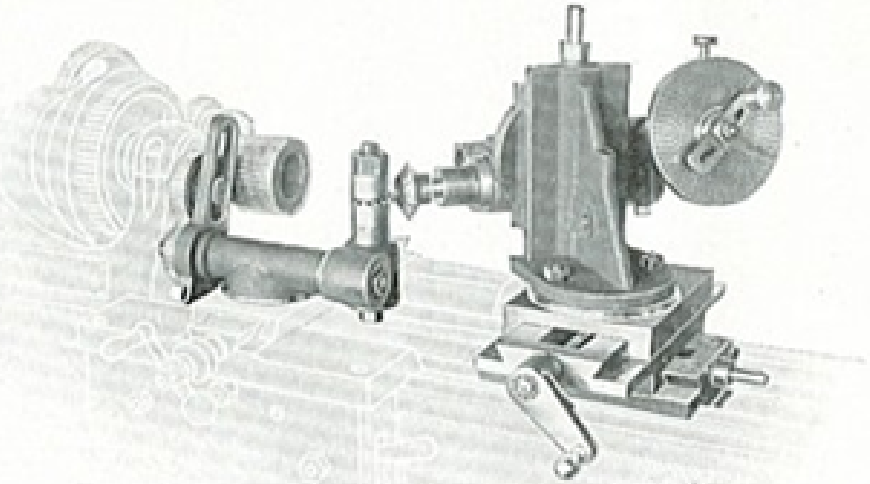
**Automatic Carriage Stop Attachment** for 9″, 11″ and 13″ "Star" Lathes may be used in connection with both the power longitudinal feed and lead-screw, automatically stopping the carriage when operating in either direction by disengaging a positive clutch. It has a much wider range of usefulness than other makes, which operate in one direction for longitudinal feed only. This attachment should be put on lathe before leaving the factory.

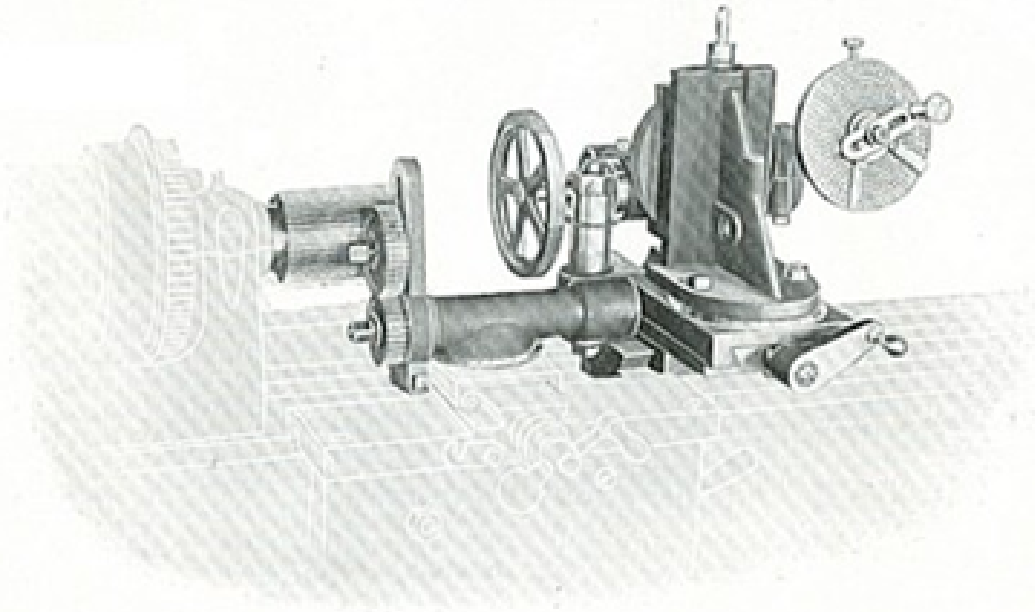
# "Star" Milling and Gear-Cutting Attachment

## For 9″, 11″, 13″ "Star" Lathes and 12″ Quick Change Lathes

This attachment (Patented Sept. 24, 1907) can be conveniently secured to lathe and is suitable for the most accurate milling and gear-cutting—milling cutters, fluting taps and reamers, cutting spur and bevel gears, surface milling, slotting, etc.

The cutter-block is attached to cross-slide of lathe carriage, can be moved in and out, and cutter can be adjusted up or down on arbor to accommodate work. The





universal head is clamped to inside ways of the bed, has longitudinal, cross and vertical slides, with feed screws graduated to read in thousandths and vertical and horizontal swivels graduated 180 degrees, permitting very accurate adjustments and cuts at any angle.

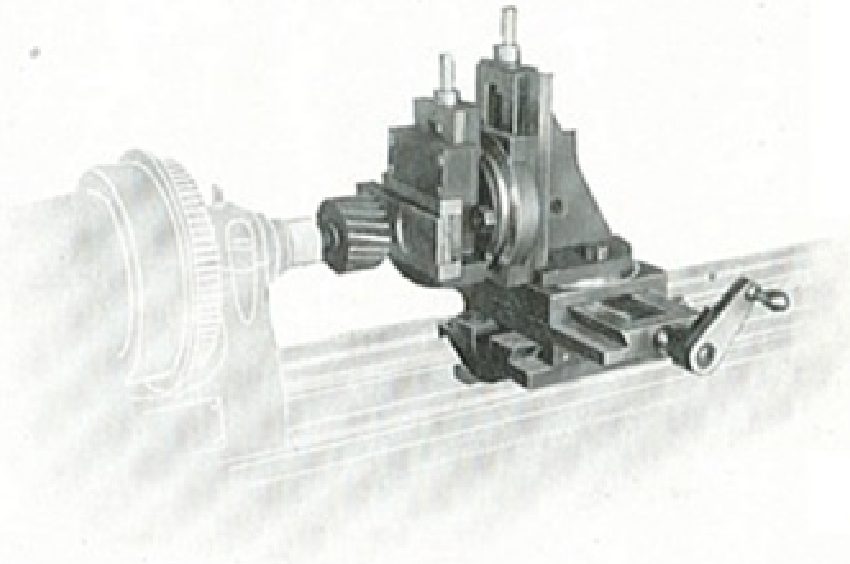
Either power feed or hand crank on apron may be used to feed cutter to work and longitudinal feed of universal head may be used to increase length of feed.

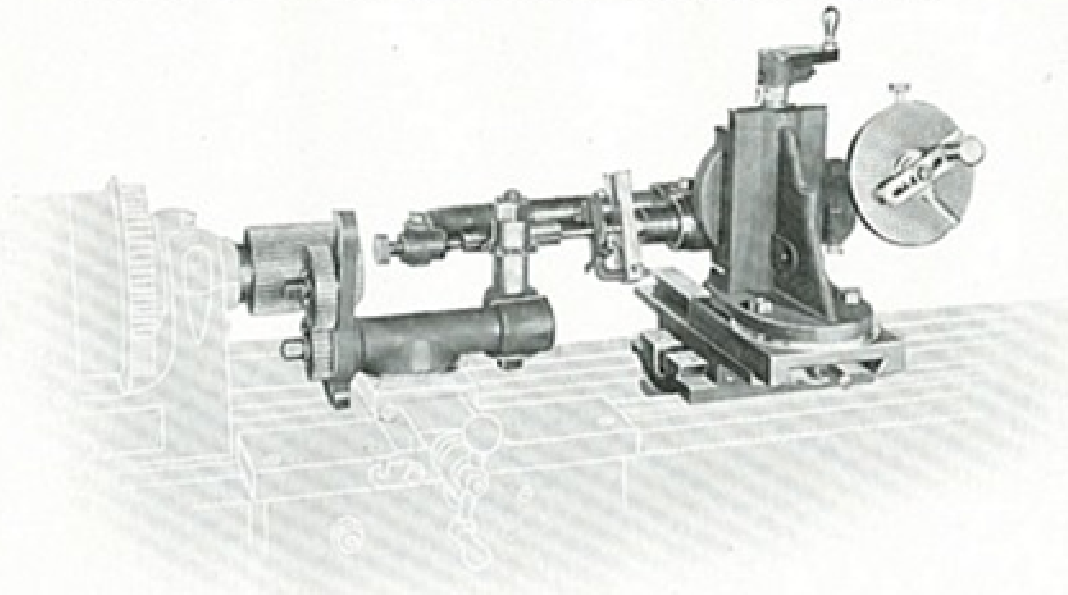
# "Star" Milling and Gear-Cutting Attachment

## For 9″, 11″, 13″ "Star" Lathes and 12″ Quick Change Lathes

The spindles of lathe and universal head have same sized hole and nose, and all centers, chucks, etc., are interchangeable. The spindle of universal head can be fitted (at an extra price) to use draw-in chuck attachment if desired, but must be fitted at factory.

Gears can be cut as large as lathe will swing. A complete index is furnished. All numbers of teeth can be cut from 1 to 50 and nearly all up to 400. We do not furnish cutters but standard milling cutters can be used.

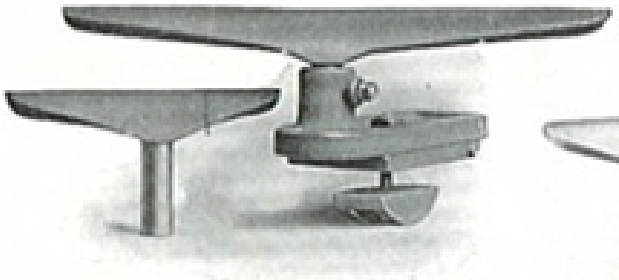




| | 9″ Lathe | 11″ Lathe | 12″ & 13″ Lathe |
|---|---|---|---|
| Longitudinal feed | 3¾″ | 4¾″ | 4¾″ |
| Cross feed | 7″ | 10½″ | 10½″ |
| Vertical feed | 4½″ | 4¾″ | 4¾″ |
| Travel of cutter | 2¾″ | 3½″ | 3½″ |
| Distance between centers of spindle and overhanging arm | 6½″ | 9″ | 9″ |
| Swing on centers of overhanging arm | 4⅜″ | 4½″ | 4½″ |
| Distance between vise jaws | 1¾″ | 2⅝″ | 2⅝″ |
| Size of vise jaws | 3¼″x⅜″ | 4¼″x1″ | 4¼″x1″ |
| Diam. of cutter arbor | ⅜″ | ⅜″ | ⅜″ |

## "Star" Hand-Rests

**For Wood-Turning**

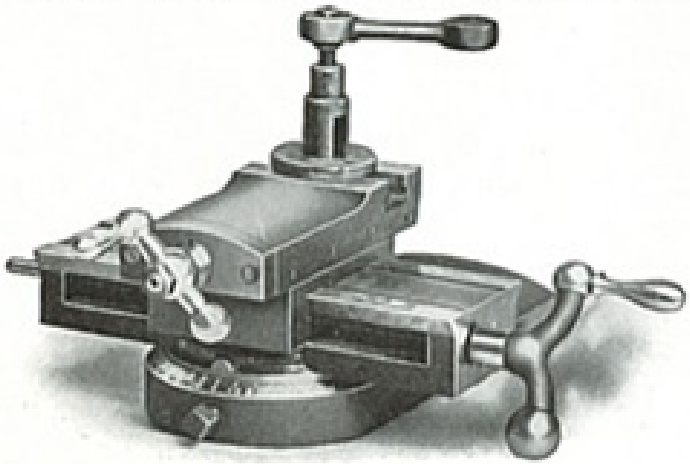


Style "A"

Style "B"

While the 9-inch and 11-inch "Star" Engine Lathes are especially designed for working metals, they can be speeded high enough for wood-turning. To do this work successfully a hand-rest is desirable. We furnish either style as shown, complete with one each short and long T-Rests.

Style "A" is clamped to the bed and Style "B" is secured to the cross-slide in place of tool-block.



## Centers, Drill Pads and Screw Chucks

For 9 and 11-inch "Star" Engine Lathes, 10-inch Speed Lathes and 10-inch Wood-turning Lathes.

Point Center

Square Center

Female Center

Crotch Center

Cup Center

Spur Center

Drill Pad

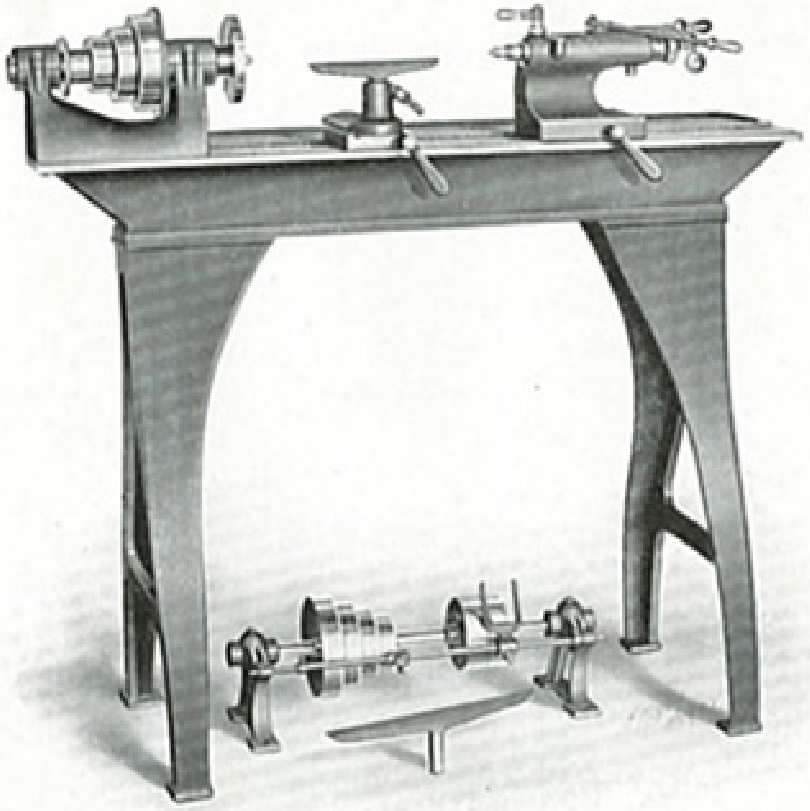
Screw Chuck

## 10-Inch Slide Rests

For 10-inch Speed Lathes and 10-inch Wood-Turning Lathes, are well made and desirable for working metals. Will turn and bore straight or tapering and face to full capacity of lathe. They swivel full circle on base, which is graduated, facilitating fine adjustments to any desired angle. Feed screws are entirely covered and protected from dirt and chips. Hand crank on longitudinal feed screw can be changed to either end, most convenient for operator. All sliding surfaces are hand-scraped to an accurate fit and have steel gibs for taking up wear.

| | |
|---|---|
| Travel of cross feed | 2" |
| Travel of longitudinal feed | 5½" |
| Size of Lathe tools | ¼"x½" |

# 10-Inch "Seneca Falls" Speed Lathe



No. 101, Style "C" 10"x4 ft. Speed Lathes has long legs and countershaft.

These lathes have self-oiling and dust-proof bearings, combination screw and lever motion, convenient locking levers on hand-rest and tailstock (attached and always in place, no wrench required) and other valuable features. This description also covers 10" Seneca Falls Wood-Turning Lathe (see cut on page 56) except that Wood-Turning Lathe has screw feed only for tail spindle.

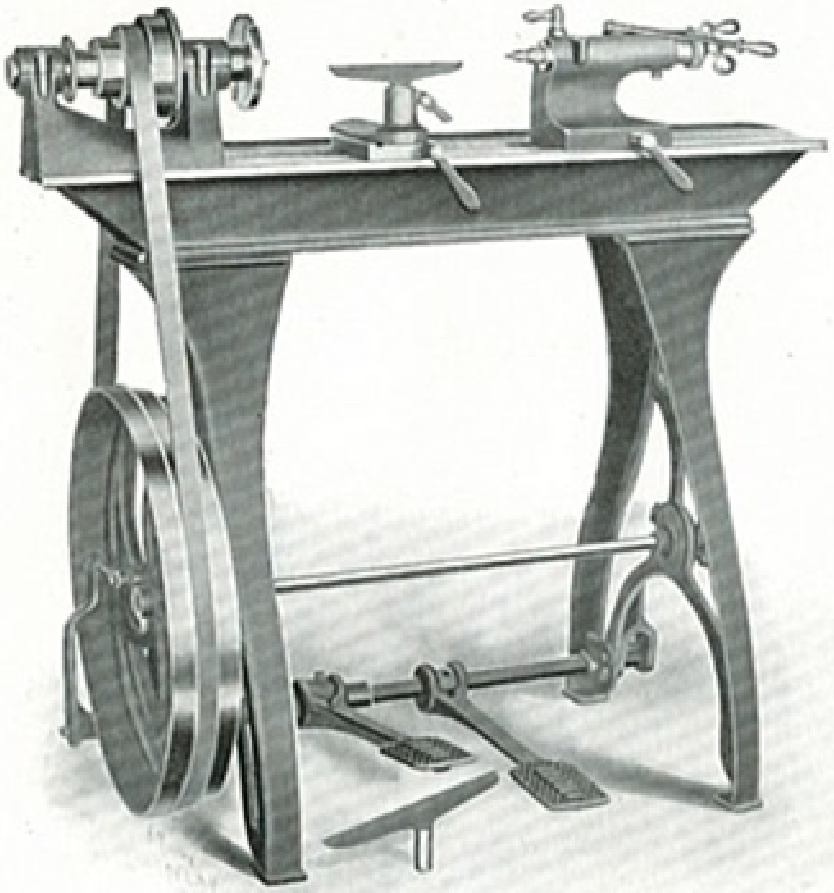
They are finished in a thorough manner, all cylindrical surfaces are ground and sliding surfaces hand-scraped.

**Headstock.** Web pattern, strong and solid. Hollow spindle made from 60-65 carbon crucible steel, and accurately ground, runs in large reliable self-oiling and dust-proof hand-scraped bearings. The cone-pulley has four steps, is turned true inside and outside, and is in perfect balance for high speeds.

**Tailstock.** Curved or cut-under pattern, spindle has improved locking device, and combination screw and lever feeds. To change from screw to lever motion only necessary to give knurled collar a quarter turn, releasing spindle sleeve and bring hand-lever (always attached) to place. The tailstock has long bearing on ways and is firmly locked to bed by a convenient lever, (attached and always in place, no wrench required).

**Hand-Rest** has short and long T-Rests. Rest socket and saddle are locked to bed by cam locking device and T-Rest is held in socket by friction clamp—doing away

# 10-Inch "Seneca Falls" Speed Lathe



No. 104, Style " F " 10"x4 ft. Speed Lathe has foot-power.

with the objectionable set-screw commonly used. Both are operated by levers, (attached and always in place, no wrenches required).

**Bed** is broad, deep and being thoroughly braced by cross webs is very stiff and rigid. Front way is flat and back way is V shape (same as inside ways on our screw-cutting engine lathes). A convenient shelf is secured to back of bed for reception of tools, etc.

**Countershaft** has self-oiling and self-aligning shaft bearings, four step cone and tight and loose pulleys self-closing oil cup on loose pulley (can furnish patent friction clutch pulleys in place of tight and loose pulleys at an additional price, when desired). Improved belt shifter operated by pull cord, this feature is not shown in cut on page 51.

**Foot-Power.** Our patented foot-motion produces greater power with less fatigue than any other kind in use; it consists of double treadles with walking motion. The treadles are adjustable and work alternately, being connected at opposite ends of driving wheel shaft, producing strong, positive and continuous power. Can be started or stopped instantly and may be operated with both feet, sitting, or one foot, standing, as desired. This

# 10-Inch "Seneca Falls" Speed Lathe

arrangement overcomes that objection of the operator being confiend to one position.

**Each Lathe** is furnished with a face plate, and two point centers.

**Attachments.** We can furnish, at additional prices, slide rests (see page 50), draw-in chucks and collets (see page 44), Screw chuck, cup and spur centers (see page 50), electric motor drive (see pages 54-55), Semi-Finished Chuck Face Plates, 3″ to 8″ diameter, drilled, tapped and hub faced true with threads, ready to screw on head spindle. Can furnish these lathes mounted on oil-pan (similar as shown by cut of "Star" engine lathe on page 31) also on bench legs (page 32). Also carriage and rack with hand feeds for longitudinal and cross motions, cut sent on request.

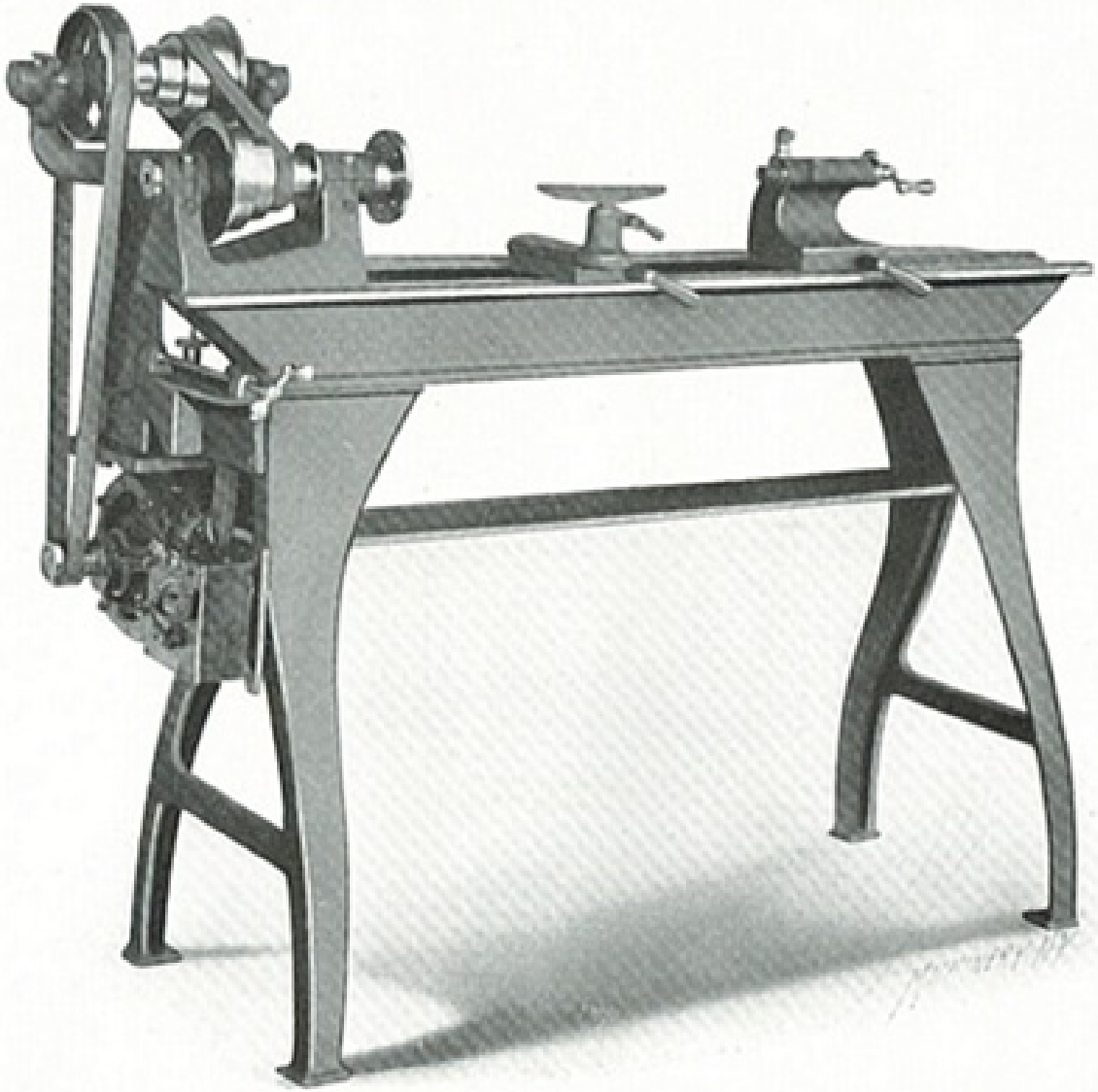
## Specifications

| | |
|---|---|
| Swing over bed, actual | 11″ |
| Swing over rests | 7″ |
| Hole in head spindle (speed lathes) | 7/8″ |
| Hole in head spindle (wood lathes) | 11/16″ |
| Diameter of spindle nose | 1 1/16″ |
| Threads on spindle nose | 12 per inch |
| Front bearing of spindle | 1 1/16″x2 3/4″ |
| Back bearing of spindle | 1 1/8″x1 3/4″ |
| Cone pulley diameters | 2 1/8″, 3 1/4″, 4 3/8″, 5 1/2″ |
| Width of belt | 1 1/4″ |
| Diameter of tail spindle | 1″ |
| Travel of tail spindle | 2 3/4″ |
| Taper of centers | No. 2 Morse |
| Size of pulleys on countershaft | 4 7/8″x1 5/8″ |
| Speed of countershaft (speed lathes) | 400 |
| Speed of head spindle (speed lathes) | 247 to 1270 |
| Speed of countershaft (wood lathes) | 600 |
| Speed of head spindle (wood lathes) | 370 to 1905 |

| Numbers of Speed Lathes | Numbers of Wood Lathes | Rated Swing and Length of Bed | Actual Swing Over Bed | Distance Between Centers | Floor Space Over All | Style C With Long Legs and Countershaft | | Style S With Bench Legs and Countershaft | | Style P With Oil Pan and Countershaft | | Style F With Foot-Power | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes | Net Weight | Cubic Feet of Boxes |
| 103 | 310 | 10″ x 3 ft. | 11″ | 14″ | 25″ x 43″ | 255 lbs. | 13 | 190 lbs. | 9 | 300 lbs. | 15 | 315 lbs. | 16 |
| 104 | 410 | 10″ x 4 ft. | 11″ | 26″ | 25″ x 55″ | 285 lbs. | 15 | 220 lbs. | 10 | 335 lbs. | 17 | 350 lbs. | 18 |
| 105 | 510 | 10″ x 5 ft. | 11″ | 38″ | 25″ x 67″ | 315 lbs. | 16 | 250 lbs. | 11 | 375 lbs. | 19 | 385 lbs. | 19 |

## Electric Motor Drive for "Seneca Falls"

# 10-Inch Speed Lathes and 10-Inch Wood-Turning Lathes



No. 510 "Seneca Falls" Wood-Turning Lathe 10" swing, 5 ft. bed, with Electric Motor Drive. Can furnish this motor drive for 10" Speed and 10" Wood-Turning Lathes on long legs or oil-pan.

## Electric Motor Drive for "Seneca Falls"

# 10-Inch Speed Lathes and 10-Inch Wood-Turning Lathes

**Electric Motor Drive** for 10" "Seneca Falls" Speed Lathes and 10" "Seneca Falls" Wood-Turning Lathes embodies new and exclusive features, is well proportioned, rigid and powerful, not liable to damage or disarrangement. It is available for use in many places where other types are not, as motors for any kind of current may be used. The bearings are thoroughly lubricated by ring oilers.

Power is transmitted from motor to drive shaft pulley and from drive cone to spindle cone by belts amply large to drive lathe to full capacity. Provision is made for quickly tightening belts and they may be kept at proper tension until worn out, without shortening. This method will prevent damage to both lathe and motor that is sometimes chargeable to less flexible gear or chain drive connections.

Any constant or variable speed motor for either direct or alternating current may be used. High speed motors are preferable as they are smaller and lower in price.

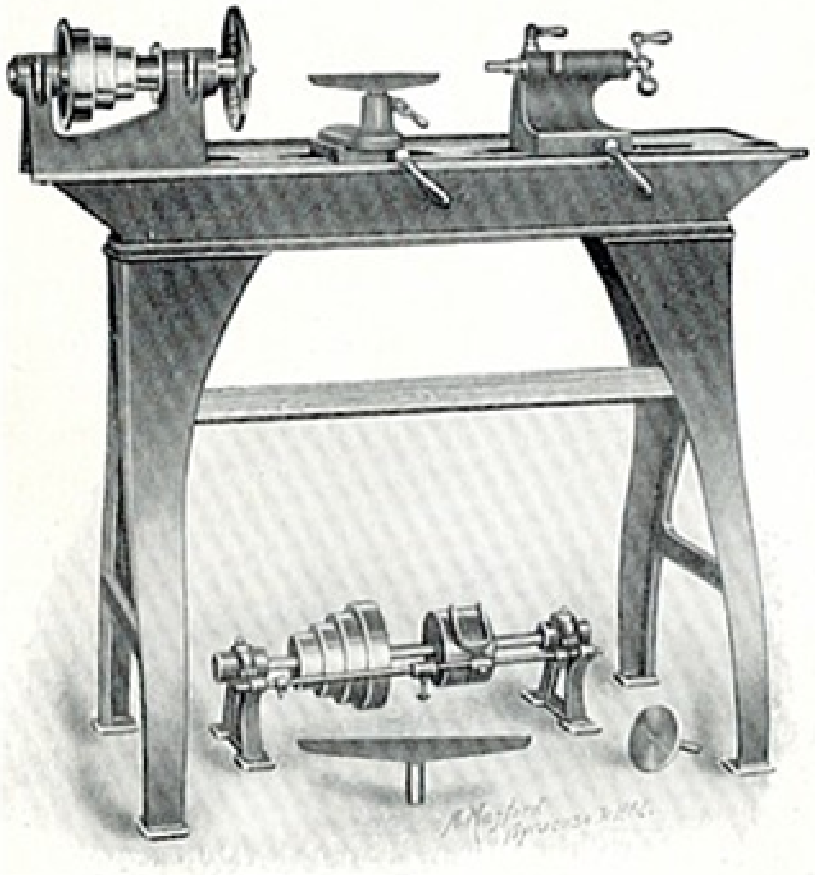
When the motor is furnished by customer it should be sent without sliding-base, arranged to mount with the feet upwards and run clockwise when facing the pulley end. The pulley on motor should be of size to run pulley on drive shaft at proper speed, (given below).

When lathes are ordered with the motor mounted, they are properly belted ready for use. The motor drive attachment is fitted to lathe in lieu of furnishing countershaft. When asking for prices and ordering motors do not fail to specify whether direct or alternating current is used. If direct, give voltage; if alternating, give voltage, phase and cycle.

## Specifications

| | 10 Inch Speed Lathe | 10 Inch Wood Turning Lathe |
|---|---|---|
| Size of motor recommended | ½ H.P. | ¾ H.P. |
| Size of pulley on drive shaft | 7"x1⅝" | 7"x1⅝" |
| Speed of pulley on drive shaft | 640 R.P.M. | 960 R.P.M. |
| Speeds of head spindle | 247 to 1655 | 370 to 2475 |

# 10-Inch "Seneca Falls" Wood-Turning Lathe



No. 410, Style "C" 10"x4 ft. Wood-Turning Lathe has long legs and countershaft.

**This Lathe** has many desirable features which commend it to wood-turners and especially for use in manual training schools. Can furnish lathe mounted on bench legs in place of long legs, also with foot-power.

For description see pages 51-53 describing 10" Speed Lathe, which also applies to 10" Wood-Turning Lathe except that the cone pulley on headstock is reversed with small step next to spindle nose, and tailstock has only screw feed for tail spindle.

Each wood-turning lathe is regularly furnished with face-plate, screw-chuck, cup and spur centers and guard collar for nose of spindle, and 3 T-rests for hand-rest. A convenient shelf is secured to back of bed and a second shelf is secured to legs under bed, for reception of tools, etc.

**Attachments.** We can furnish, at additional price, slide rest, (see page 50) for turning metal, electric motor drive, (see pages 54-55) Semi-Finished Chuck Face Plates 3" to 8" diameter, drilled, tapped and hub faced true with threads, ready to screw on spindle. Also carriage and rack with hand feeds for longitudinal and cross motions; cuts and full description sent on request.

# "Full of Wise Saws

AND

# Modern Instances"

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